The Physician's Magazine.

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THE CLASS OF ORIGINAL ARTICLES DESIRED.

We state in our Prospectus, that "what we find worth printing, will be found worth reading." In it we also ask for "original articles on any subject, pertaining to the work or interests of the Profession." These statements show clearly by what standard we shall judge an article offered for publication:

1. That it shall be worth reading.
2. That it shall be original in its salient features.
3. That it shall pertain to the work and interests of the Profession.

We also state that "each article will be published over the name of its writer, and he alone will be responsible to the Profession for his views and statements."

If a Physician has anything of importance to say, we offer him an opportunity to say it in his own way; our only restriction being that he shall say it concisely and that his words shall pertain strictly to his subject. We do not ask contributors to count their words, but to see that every word counts.

We design this Magazine to be so valuable that no Physician *can* do without it. For this reason, we desire original articles of the highest scientific value and culture, others of alphabetical simplicity, but shall esteem of highest value, those articles that are most helpful to the largest number—the average member—of the Profession. Such articles will contain only the simplest and fewest words in which the intended meaning can be expressed. A worthy or important meaning so expressed, will be engraven in the memory—a perfect mosaic—no word of which can be lost without marring the usefulness of the whole.

The List of Contributors in our first number, with the additional names given in this number, and our list of announced subjects, should be satisfactory evidence to any Physician of our intention and ability to make THE PHYSICIAN'S MAGAZINE worthy of a place in his library. Each Physician should own it. Its price can be no objection.

OUR BOOK REVIEWS.

WE design to make the department of *Book Reviews* an original feature of this Magazine.

A book sent to us for review will be referred to a writer acquainted with its subject. The review will be announced, paid for and published as an *original article*, over the name of its writer.

The reviewer will be allowed sufficient space in which to give the Profession a clear idea of what the book really is. He will be expected to do equal justice to the Profession and to the Author. It will be understood, however, that the review is an *absolutely independent one, written in the interest of the Profession only.*

We invite Authors and Publishers to send us, for review, proof-sheets of their publications.

STATE CONTROL OF MEDICAL EDUCATION AND PRACTICE.

WE believe we can render no greater service than to give space to this subject; not because we think it of vital importance to the Profession, but because we believe it to be of vital importance *to the People*. On this subject, the Profession must be the educator of the public.

That the subject may be intelligently discussed, we think it important to prepare an authoritative statement of laws now in force relating to it. To this end, we have addressed the following letter to the *Attorney-General of each State:*

Office of THE PHYSICIAN'S MAGAZINE, 1539 Chestnut Street.

PHILADELPHIA, October 27, 1885.

Attorney-General,
State of ———— }

Dear Sir:—We intend publishing a series of papers on the subject of *State Control of Medical Education and Practice.*

We desire to publish, therewith, an abstract of the laws of each State now in force relating to this subject; also, if possible, abstracts of any bills offered in the last session of the State Legislature, not enacted. Our object is, to show the present condition of legislation, *effected or attempted*, regarding this vital interest of the People.

We enclose the latest abstract we can find of the law in your State. We desire to have it returned to us with such corrections as may be necessary to represent correctly *the present condition of the law.*

If the information we seek cannot be obtained through your office, please refer this communication to the proper State officer, that we may not fail to obtain what we desire.

If the custom of your office requires that we shall pay a fee for the information requested, please advise us.

This subject is of the first importance to the People of your State.

Please favor us with an early reply and oblige,

FOOTE & SWIFT, *Publishers*,
THE PHYSICIAN'S MAGAZINE.

We have already received a number of satisfactory replies to these letters. We shall doubtless hear from each State, in time to enable us to print a complete résumé of its laws on the subject in our next issue.

Further, considering the short experience any State in this country can have had in legislating upon this subject, we have applied to *The Secretary of State, for the United States*, to obtain a copy of such laws now in force in each foreign country.

The following is a copy of our application:

Office of THE PHYSICIAN'S MAGAZINE, 1539 Chestnut Street.

PHILADELPHIA, November 10, 1885.

Secretary of State, for the United States,
WASHINGTON, D. C.

Sir:—In the interest of the People, we are publishing in THE PHYSICIAN'S MAGAZINE, a series of papers on the subject of *State Control of Medical Education and Practice.*

Legislation, enacted or attempted, in nearly every State, shows that Legislators are impressed with the fact that laws upon this subject affect the vital interests of every community.

That an authoritative statement of the *present* condition of such Legislation in the United States may be made, we have addressed a request letter, a copy of which is attached, to the *Attorney-General* of *each State.*

It is desirable that a similar statement be made of the laws of foreign countries, That this may be done, we ask you to request a diplomatic correspondent in each country with which the United States holds diplomatic relations, to obtain and forward to your office an abstract of all laws relating to *State Control of Medical Education and Practice*, together with any observations he may make regarding the practical effect of such laws.

As legislation on this subject will be attempted in a large number of States during the coming year, it is desirable that this information be obtained at an early date.

Respectfully,
FOOTE & SWIFT, *Publishers*,
THE PHYSICIAN'S MAGAZINE.

This application is endorsed as follows:

"I do most highly approve of the object of the above communication."
(Signed) D. HAYES AGNEW,
[Professor of Surgery, and Clinical Surgery, University of Pennsylvania.]

"I heartily concur." (Signed) F. M. GUNNELL,
[Surgeon-General, U. S. Navy.]

"I cordially recommend concurrence." (Signed) R. MURRAY,
[Surgeon-General, U. S. Army.]

"A résumé of the Consular reports asked for would be valuable."
(Signed) JOHN B. HAMILTON,
[Supervising Surgeon-General, U. S. Marine Hospital Service.]

Laws on this subject should be enacted in the interest of the People. Otherwise, they have no right to a place in the Statute books. They belong in the same class as laws regulating Banking, Insurance, Common-carriers, etc. They are for the protection or assistance of the individual when his own power of protection or selection is insufficient. The discussion of the subject therefore should be placed and kept on the ground of *public policy*. To do this, there is need of

information to be placed before the People and their representatives, that is authoritative and *independent of the Profession.* For this reason we made our application for Domestic Laws to the Attorney-General of each State, and for Foreign Laws to the Secretary of State for the United States.

We suggest that, to strengthen the latter application, all *Medical Societies, the Medical Press, and Individual Members of the Profession* furnish us with an endorsement of the same, in the form of resolutions, editorial notices and letters, which we will present to the Secretary of State. So sustained, favorable action will be certain.

It is our intention to make a careful compilation of the information asked for, as soon as received, and publish the same in THE PHYSICIAN'S MAGAZINE. If we find sufficient encouragement to justify us in doing so, we shall publish, at a nominal price, *A Hand-Book of Domestic and Foreign Laws on State Control of Medical Education and Practice.*

SANITARY SCIENCE OR STATE MEDICINE.—A SUGGESTION.

DR. GEO. D. HERSEY, of Providence, R. I., writes:

One nearly unoccupied field is that of sanitary science or State medicine. Most Medical Journals in this country merely refer to it with a paragraph or two occasionally, not giving the subject its deserved prominence. To me, it would be a charming feature of THE PHYSICIAN'S MAGAZINE, if that department was well edited and didn't appear to be managed by a medico-sanitary politician or a Plumbers Association.

We are aware of the high importance of this subject, and shall be glad to receive original articles pertaining to it.

This is another subject of vital importance to the People and one on which the Profession must be the educator of the public. We invite Physicians who feel themselves especially fitted for the work, to address the Profession on this subject, through the pages of THE PHYSICIAN'S MAGAZINE.

THE PRACTICAL WORKING OF LAWS REGULATING MEDICAL PRACTICE IN THE UNITED STATES.

ANNUAL REPORT TO THE AMERICAN ACADEMY OF MEDICINE.

BY RICHARD J. DUNGLISON, A. M., M. D., OF PHILADELPHIA, PA., AND HENRY O. MARCY, A. M., M. D., OF BOSTON, MASS., COMMITTEE.

[*Read at the Annual Meeting at New York, October 29, 1885.*]

SO little change has taken place within the twelve months which have elapsed since the last annual meeting of the American Academy of Medicine, in regard to the legislative restriction of the practice of medicine, that your committee might, in a few brief sentences, dismiss the subject by a statement of the actual work accomplished in this direction. The honest efforts of medical men and others, during the past year, to accomplish creditable results in States not already under the influence of practical legislation for the repression of quackery, have been unabated, but in several cases disappointment has been the only issue of their labors. Indiana and North Carolina have passed laws regulating the practice of medicine, but so far as known, no changes have been made in the laws of other States. Your committee have entered into correspondence with medical gentlemen in the various States and Territories, with a view of eliciting an expression of their opinion as to the efficient or inefficient operation of laws now in force, or as to the need of further legislation upon the subject; believing that a comprehensive view may in this way be obtained of the progress of medical legislation in near and distant regions, of the obstacles with which the due enforcement of the law must contend, and of the legislative restrictions that may yet be needed to protect the public from quackery and pretension. They desire to express to the gentlemen who have responded to their inquiries their grateful appreciation of their kind interest in thus furthering the objects for which the committee was originally instituted.

Dr. Alfred Ludlow Carroll, Secretary of the State Board of Health of New York, refers to the law of 1884, now in operation in that State, in the following language:

"The act then passed certainly has not been efficacious in excluding from our profession grossly incompetent and disgracefully uneducated men. It admits to registration all who have diplomas from 'chartered medical colleges,' and the laxity of Legislatures in granting charters to almost every applicant without inquiry, has, as you

know, flooded the country with half-taught or untaught practitioners. It further recognizes all those who procured licenses from county medical societies under the law enacted a few years before; a law which enabled some irregular and self-constituted societies to reap a golden harvest by distributing licenses to all comers for a small pecuniary consideration. Then, to cap the climax, it generously provided that any person who had been a quack for 'ten years last past' should thereafter be entitled to registration as a legally qualified practitioner.

"The natural result of this sapient legislative safeguard is that 'letters of marque' are given to buccaneers who, without the prestige of their registration in the County Clerk's Office, would probably be drummed out of any semi-civilized locality. The depth of their ignorance cannot be fully appreciated without an inspection of some of the death certificates which are daily returned to our registrars, and in which orthography and pathology struggle for the underhand.

"Several bills have been introduced at various times, looking to a State examination; but none that I have seen seem, to my mind, calculated to materially improve the status of the profession. The last one that was introduced had the fatal provision that the examination was to be conducted wholly by written papers, the examiners not even to know or see the candidates; thus excluding all clinical and practical tests, and all opportunity to judge of the mental calibre of the applicant. It has always seemed to me that the first thing needed is to prescribe a minimum educational qualification before entrance upon medical study; second, to require competent instruction in a fixed curriculum of subjects; and thirdly, to demand that the pass examination shall really test the extent to which the student has availed himself of this instruction; having, if necessary, visitors to the examinations. This is the basis of the system pursued in Great Britain, under the General Medical Council, and it could be managed, at all events in this State, through the Board of Regents of the University, with a very slight extension of their present power. As affairs now stand, the facilities for learning in our leading medical schools are all that could be desired, if the pupil be desirous to learn; but so many subjects are optional, and the examinations are sometimes so merciful, that men may 'pull through' with very little fitness to deal with human life and health.

"If all colleges were compelled to conform with a fixed [minimum] standard, as a condition of the validity of their diplomas, and the downward competition thus abolished which now almost inevitably arises from their dependence on students' fees; and if, furthermore, no student were allowed to matriculate without a reasonable preliminary education, we should soon have less cause to feel ashamed of the estimation in which an 'American degree' is held abroad. I fully appreciate the difficulty, nay, even the impossibility, of our better colleges carrying out the advances which I know they would gladly institute if it were not for the 'Dutch auction' which attracts students by offering degrees on easy terms; and the 'need of further legislation' applies chiefly to the less conscientious or less competent schools, rather than to those which are honestly ambitious to perform their duties to the profession and to the public.

"I have written hastily, but trust that I have made my meaning clear; especially as regards my conviction that the present law of this State is utterly unsatisfactory in its operation."

Dr. R. Lowry Sibbet, of Carlisle, Penn., a Fellow of the Academy, who was very active in securing the passage of a registration law in this State, thinks that—

"The law is about as well executed as any law of the kind could be without an executive head. It has stopped the non-graduate class from crowding upon us. We certainly need further legislation; but it would be of no use, unless our Board of Health is authorized, by a supplemental act, to supervise registration in all the counties; in other words, *to grant a license to register.* This should be asked for at the next session of our Legislature. And I think another section might give the Board authority to hear all cases against which complaints are made by any three registered graduates, in any county, as to bad character, ignorance, fraudulent registration, etc., with authority to strike their names from the medical register. We should move on the line of the Board of Health of Illinois. Success can be reached on that line. I favor a liberal bill."

Dr. Edward Jackson, of Philadelphia, a Fellow of the Academy. says, in regard to Pennsylvania legislation, which has thus far not passed beyond the regulation of the registration of medical men:

"The existing registration law is, I think, generally observed, though where the attempt has been made to enforce it, or to enforce the penalties for non-compliance with it, juries have, so far as I know, without exception, found for the defendant, basing their verdicts on the most flimsy pretext of a defense. An attempt was made last Winter to secure a law providing for the examination of all desiring a license to practice medicine, by a State Board of Examiners, unconnected with the colleges. The attempt was, perhaps, premature; at any rate, it failed. Since then the plan has received the endorsement of the State Medical Society, and appears to have many active supporters throughout the State, notably among the younger, more active and progressive members of the profession. As it still, however, has to encounter the bigotry of the various so-called 'schools' of medicine, and the self-interest of the medical schools, its adoption by the State government is, for the present, uncertain. It is hoped, however, that it will be able to make considerable progress before the next meeting of the Legislature, more than a year hence."

Dr. Leartus Connor, of Detroit Mich., a Fellow of the Academy, writes:

"The law which now exists calls for the registration of all medical practitioners in the County Clerk's Office. For each registration each doctor pays fifty cents. None except the registered are allowed to practice medicine. Every person could register at first. After the first registration, to register, a diploma is required. Previous to this, all required was evidence of actual practice for five years in the State. So far as is apparent, the entire good of the law has been to give lots of quacks a legal standing. No person is charged with the detection and prosecution of those who violate the law. For that matter, no regulation that does not go back of a diploma will amount to anything. In my own judgment, most so-called medical colleges are simply diploma mills. Unless these can be made to shut up or do good work in teaching, diplomas are practically worthless, as indicating any definite amount of training in any particular individual. The only fair and efficient remedy for this state of things would be the establishment of an independent examining board for each State. The duties of this board should be double. (1) To examine every medical student as to his fitness to enter upon the study of medicine in any one of the the medical colleges of said State. (2) The examination of every person desiring to enter upon practice in the State.

"Did each State have an independent and efficient board of examiners, who should in a fair manner do these two things, and sufficient paid detectives to see that no other persons entered upon either the study of medicine or its practice, then the corps of the profession would be filled with honest, efficient men.

"My doubt concerning the advisability of working for such a board is, my despair of ever getting such a one in a land where the people govern. Politics make strange bed-fellows, and I fear the individuals on such boards are quite as likely to be corrupt as the medical teachers. We have demonstrated that such men as pretend to teach medicine cannot, as a rule (to which there are many honorable exceptions), be depended on in any respect to look after the interests of the general medical profession. Hence we can be no worse under another order of things. But, after all, our hope in the future depends mainly upon such efficient instruction of the laity, that they will be able to separate the quack from the competent physician. This is a slow remedy, but it is the only effective one. Laws regulating medical legislation will be just so good or bad as the intelligent wishes of the laity may determine."

Dr. R. C. Kedzie, of Lansing, Mich., a fellow of the Academy, states that—

"The law of 1883, requiring registration of all practitioners of medicine, and forbidding any one to practice medicine unless he has a diploma from some chartered college, or has been engaged for five years in medical practice, is a law that will do something for the profession in time, as it will in three years more weed out those without diplomas of some kind. This is a small step, but it is an advance on the former system of unlimited license in medical practice in this State."

Dr. Henry B. Baker, of Lansing, Secretary of the Michigan State Board of Health, writes that—

"The present law is defective, but better than no law. There is need of further legislation for the creation of a State Board of Examiners. These examiners should, in my opinion, represent the Colleges of Michigan, authorized by law to confer the degree of M. D. The separation of the teaching bodies from the licensing body, would, in that case, be as complete, in one sense, as could be wished; that is, no *one* college could control the admissions to the licensed profession; and yet the people would have the benefit of having the examinations made by those best qualified to make them, namely, those who are teaching, and who are consequently best informed in recent advances in the medical sciences and arts."

Action upon the subject of recently enacted legislation in Massachusetts, may be briefly related:

In June, 1884, at the annual meeting, there was appointed by the Massachusetts Medical Society a legislative committee, to secure, if possible, the passage of an act to protect the people from incompetent practitioners of medicine. This committee consisted of seventeen men selected as the representatives of the different districts in the State. They were appointed as thoughtful, representative men, without knowledge of their views upon the question of legislation. The committee

worked faithfully and in harmony. A "bill" was carefully drawn and presented. A "hearing" upon the subject was ordered before the Committee on Health, to whom the question had been referred. Much public interest was elicited and a large attendance continued until the end of the hearing, which lasted four days. The Committee reported a bill, which would have been very satisfactory to most liberal men, based upon the possession of knowledge as evinced upon a careful examination. It was presented during the last hours of a heated, long drawn out, political contest, when time could not be given for its proper consideration, and loaded down with amendments, offered for its destruction, it failed of passage. It was shown as probable that there is in Boston, at the present, greater ignorance and criminality disguised under the name of the profession, than in any other city of the Union. Even houses of ill-fame are covered under the name of physician. Free thought, so loudly proclaimed as peculiar to Bostonian wisdom, has given its fruitage in free practice. The dogma of infinitesimals, so long holding here its sanctum sanctorum of the whole world, is fast being superseded by the latest fashion of "Christian science." These students of metaphysical philosophy throw down the gauntlet to our Homœopathic brethren, in their rationalistic idealism, and, in the vernacular, go them "one better," when they unfurl as their motto the trite old proverb, "as a man thinketh so is he." The law of New York was supposed very imperfect, but it drove to Boston a fifth Avenue pretender, who is said to have paid a prominent lawyer, last Winter, $800 to appear in opposition to "class legislation."

Dr. J. Berrien Lindsley, of Nashville, Tenn., a Fellow of the Academy, writes that in that State—

> "There is absolute and entire separation of State and medicine. Any and all may set up for physicians, and starve or make money, as the people decree. From many years' observation, I incline to the opinion that the views so ably maintained by the late eminent Dr. Wm. K. Bowling, are correct. He strongly advocated the Tennessee system as the only one that would prevent the ultimate degradation of the medical profession into a mere trade."

Dr. C. C. Fite, Secretary of the Medical Society of the State of Tennessee, entertains a different view when he writes—

> "There is no law whatever in Tennessee, and the profession being divided on the subject, we can get none. In my opinion we need a law."

In corroboration, we may again quote the picture presented in the report of your Committee on this subject two years since, derived from the pen of the same writer; for the condition of affairs in that State is just as lamentable now as then:

"Indians, negroes, confidence men, and all that ilk, ply their 'trade,' with no restrictions whatever. Any man who claims to be a doctor *is* one; hence, druggists who do not know enough to make a living, turn out as doctors, in full practice, before you know it. A farmer boy, too lazy to plow, reads an old work on practice, or 'Every Man his Own Doctor,' invests six dollars in drugs, and is a physician; and being a 'regular' we all consult with him. Our legislators will not touch, and our doctors are too timid to press, the subject, and so we languish in the old paths."

Dr. J. A. Thacker, of Cincinnati, O., editor of the *Cincinnati Medical News*, and a Fellow of the Academy, writes as follows:

"A law was passed in Ohio, twelve or fifteen years ago, requiring that all persons who, at the time of the enactment of the law, had not been engaged in the practice of medicine ten years, should either obtain a diploma from a chartered medical college or a license (certificate) from a medical society, within a certain time that was mentioned; that all individuals, thereafter, proposing to practice medicine in the State should either hold a diploma from a medical college or a certificate from a medical society, certifying to their qualifications. This law is still in force, and is, I believe, the only law in this State which has reference to the practice of medicine. From time to time, since this enactment, drafts of laws have been presented to the Legislature for passage, but they have failed of adoption. While, as you can see, the present law is some curb upon assumption and ignorance, it falls short of being the restraint it should be. It is a very easy thing for a few quacks and charlatans, without diplomas, to form a society and furnish one another with certificates. Besides, as practitioners of medicine are not required to file their diplomas or exhibits them to any public officer, it cannot be ascertained what physicians have diplomas and what ones have not, except through some detective agency. If a prosecuting attorney should bring suit against a practitioner of medicine on a charge of not having a diploma, he would risk being put to confusion by the accused producing a diploma or certificate. The law makes it the duty of the county prosecutor to prosecute these cases.

"I have urged frequently, in the editorial department of the *Medical News*, that it will be impossible to protect the profession from ignorant men so long as the colleges, or their faculties and Trustees, are permitted to confer the degree of M. D. and charge a fee for it. The fee of twenty-five or thirty dollars charged each graduate for his diploma is a bribe. Why should a young man who has filled all the requirements of graduation, and passed a successful examination, be compelled to pay this large fee? He is entitled to the degree; it is his right to have it; and to keep it from him when he has the necessary knowledge, obtained by three years of study with a private preceptor, and attendance upon two or three full courses of lectures, paying all fees and exhibiting proofs of good moral character, is an outrage. Those who are acquainted with American medical colleges know that but few of them are endowed, and that the members of the faculties are pledged for all expenses; that if the various fees do not amount to enough to pay expenses, they, the members of the faculties, must not only be content to receive no remuneration for their labor in teaching, but must put their hands in their pockets and take therefrom funds enough to make up the deficit in expenses. Now, with a large number of institutions, probably the majority, it requires all the fees—both tuition and diploma—to pay actual current expenses, leaving nothing

to pay labor of teaching. Under such circumstances, consequently, when a candidate for graduation is refused a diploma, the thirty dollars which is returned to him, which had been paid by him in advance for the sheepskin, must be taken directly from the private purses of the professors. Is there not a strong temptation, rather than do this, to permit the candidate to carry away the diploma and let the thirty dollars remain in their purses?

"It would be my suggestion that an examining board be constituted, by either a proper person or body, which should meet once each year and examine rigidly the qualifications of all individuals desirous of having the degree of M. D. conferred upon them—their character, general literary and scientific acquirements, the length of time they had devoted themselves to the study of medicine, the number of college sessions they had attended, etc., and then, that this board have the power to confer the degree upon all they should find qualified."

Dr. Andrew C. Kemper, of Cincinnati, O., a Fellow of the Academy, writes as follows:

"The Ohio State Society appoints, annually, a committee on legislation. Last year this committee proposed to the Legislature the passage of a law which they styled, from the sources from which it was suggested, the Consolidated Illinois Law, but failed to secure its passage, after more than a month's residence at Columbus. Just now, in this State, the profession is a law unto itself, with little credit.

"I know of no law in Ohio favoring the medical profession, with one exception. Administrators are required to pay certain preferred claims, whether other debts are paid or not. First among these is that of medical services rendered during last illness. If the deceased leaves any means at all, the medical services he received during his last illness must be paid for, and it is not necessary to itemize the bill. Some time ago one of our magistrates rendered a decision in favor of a doctor, putting his services on the plane of work done, against which there are no exemptions in our laws. Against other claims the laws make about $1,000 exemption. But it is generally conceded this decision would not stand if carried to a higher court."

Dr. G. S. Franklin, of Chillicothe, O., gives his testimony to the same effect.

"Ohio has made no step in medical legislation for many years. Free trade (in medical practice), is her motto; the most arrant quack, driven from Illinois, Indiana or West Virginia, can find fresh fields and pastures new in our State. None but a diploma-ed physician can collect bills by law in this State, but the quacks always demand cash down, and then can well afford to laugh at our feeble efforts in favor of a scientific education. New laws as to 'Health Boards' (State and district), and as to 'State Medical Examiners,' have been proposed before our State Medical Society; were pruned of too great progress by a committee, of which I was one; were approved by the State Medical Society in regular session; were sent to district and county societies for their approval; and were endorsed by the medical press of the State. We are to make another effort this Winter, and we believe with better hopes of success, because some of the 'doctors' who fought us bitterly will not be members of the next General Assembly. In the meantime let your report state that Ohio seems to be awaking from her shameful slumbers, and hopes to take her place in the procession of sanitary progress and a sounder medical education."

Dr. G. A. Collamore, of Toledo, O., says that—

"Existing laws in this State are practically inoperative, and there is no hindrance to any person, white or black, male or female, graduated or ungraduated, setting up for a doctor. It is most emphatically 'free trade.' The average legislator is indifferent and apt to consider such legislation a scheme on the part of the doctors to drive out irregulars in order to have the field to themselves; at least, this argument served the purpose in the last Legislature."

Dr. J. T. Reeve, of Appleton, Wis., writes:

"Our legislators hitherto have not looked with favor upon any bill that has been laid before them having for its object the elevation of the standard of practical medicine, or the protection of the people from incompetent practitioners, regular or irregular, and the chances for the passage of any such bill, even should one be introduced, are not at present large.

Dr. Cornelius Kallock, of Cheraw, S. C., a Fellow of the Academy, states:

"There has for a brief time been a law in South Carolina requiring a man to have a diploma in medicine before he could engage in the practice; now since diplomas are so cheap and so easily obtained, we are making efforts to advance further.

"The South Carolina Medical Association has urged upon all its members and the profession throughout the State to admit no person to their offices to read medicine who has not been the recipient of a fair amount of education, viz., reading, geography, arithmetic, and some of the higher mathematics, natural philosophy, one or more of the classics, or modern languages. The whole profession in this State and the public, to a very large extent, are wide awake to the importance of having well-educated doctors. We have made a good beginning, and we will push the matter to where it ought to rest. No person in this State, without a degree of M. D., can collect his fees by law. If his patients choose to pay him, well and good, but he cannot force them."

Dr. Thomas E. Pickett, of Maysville, Ky., a Fellow of the Academy, gives the following interesting account of the condition of the law in that State:

"An act for the 'suppression of empiricism' in this State, was passed by the Legislature, at Frankfort, in 1874, and went into operation the same year. The act specifies as subject to its provisions, any practitioner who has not graduated at a chartered school of medicine or who cannot produce a certificate of qualification from a State Examining Board. The only persons exempted from the operation of this act 'are such as can show that they have been engaged in regular and honorable practice 'for ten years previous to the passage of the law.' Candidates before an examining board are required to show a competent knowledge of anatomy, physiology, chemistry, obstetrics, surgery, and of 'practical medicine' so far as it relates to the nomenclature, history, and symptoms of diseases. The penalty prescribed for failure to conform to the requirements of the act, is fine and imprisonment, either or both, at the discretion of the jury.

"As a member of the State Board of Medical Examiners, for this judicial district, the writer was in a position to observe the operative results of the law, as well as to note its effects in the creation or development of a public sentiment adverse to 'irregular' or empirical methods of medical practice. In both respects the immediate operation of the law was highly favorable. The enactment of such a measure 'drew the line' at once, by directing public attention to the character of the evils which the measure was designed to correct; and the mere existence of such a law upon the statute-book operated *preventively*, not only by the temporary suppression of indigenous quackery, but by the almost absolute exclusion of nomadic and predatory empirics from the limits of the Commonwealth which was at that time presumed to be under the protection of the law.

"If the object of those who designed the measure was not fully attained, it was clearly because of the prevailing incapacity of the public to appreciate the importance of such a law, and of the characteristic indisposition of an 'autocratic democracy' to enforce it; since, unfortunately, it is true here, as elsewhere, that to a very remarkable extent, the irregular practitioner is protected and encouraged by the credulous and confiding public upon which he preys; and it is possible, after all, that the only practicable solution of the problem which is submitted to those who would regulate the practice of medicine in a 'free country,' is to insist strenuously and ceaselessly upon the maintenance of a high standard *in the public service and in the medical schools*."

As a counterview to the opinions generally advanced upon the subject, Dr. George Cowan, of Danville, Ky, offers the following, which, however we may differ with them, express ideas which have to be considered as an indication that in the ranks of the medical profession itself, opposition may be offered to the plans proposed for the legislative restriction of medical practice:

"The matter of legislative control of the practice of medicine in this country has always appeared to me one of very doubtful value or expediency. The form of government is not suited to it. The people are the sovereigns, and have not the intelligence or virtue requisite. The monarchical or paternal form of government is alone competent to such a task, and this only by reason of the complication of political affairs in the Old World. With those governments it is a dire necessity of perpetuity and existence to exercise an intelligent paternal control over the welfare of the people. They cannot afford to have the lives of soldiers or citizens subject to the insecurity of inefficient quarantine or ignorant medical service in sickness. With us there are no such considerations controlling our government. The morals of party organization are too well known to be trusted for a moment, in my estimation, to make a wise selection of health officers for the public, or to guard the entrance to the practice of medicine. Possibly the nature of the duties may be such, in the matter of the quarantine service, if this could be placed under National control, to secure efficient work in this department of State medicine; but in the matter of State boards for licensing practitioners, my observation of this part of the work, in the department of State medicine, is all against it. The boards are painfully incompetent and as the position is a political one, can never be better under the present form of government. These are rather pessimistic views, but I believe they will stand the test of any amount of discussion.

"I think if we could secure a National Department of State Medicine, limiting its service to quarantine of all ports of entry, and also to the management of veterinary quarantine over the States as well as in foreign trade, we had best trust the public intelligence to take care of itself in the choice of its medical attendants. The law of the 'survival of the fittest' would have an unembarrassed opportunity, and would right everything."

Dr. H. Galloway, of Fargo, Dakota, writes as follows:

"The Dakota Legislature enacted a law last Winter, creating a Territorial Board of Health, consisting of a President, Vice President and Superintendent, the last to be a physician and appointed by the Governor. One function of this Board is to grant licenses to practice medicine and surgery in Dakota; or, more exactly, this is the function of the Superintendent, who, in this, is associated with two other physicians chosen by the Board of Health. These three physicians make what is termed the Territorial Board of Examiners.

"In Dakota, there are no medical schools nor class of men engaged in teaching medicine. There is nothing in the standing of any man or set of men to give a *presumption* of professional superiority, from whom to select the Board of Examiners. They must be taken from the common file. The Superintendent must, almost of a certainty, get his appointment upon information by interested parties. He, naturally, has nearly all to say in the appointment of his associates. So it is that a color of probability is given to the common belief that the law is working into the hands of a few who covet prominence; and so it is that such a Board, so constituted, sit in judicial inquisition upon the right to practice medicine in Dakota.

"'License to practice' under this law, applied to physicians already here, means license to *continue* to practice. A man may have spent the major part of a business life-time in the profession; may have acquired an honorable distinction, with all such distinction implies, and yet be counted a criminal if he neglects to obtain a license. The just pride that comes of acknowledged acquirements and high professional standing, naturally enough resents the terms upon which the license is to be obtained. Such practitioners are to be found in all the cities and villages of Dakota, and all, so far as I know, regard the law with contempt.

"There is, probably, a smaller percentage of irregular doctors in Dakota than in average communities of the same number of people. Almost every one has his diploma, and the best colleges in the United States have their alumni scattered throughout the territory. Among them, the feeling is that legislation looking to the advancement of the whole, rather than to the interests of the few, is desirable. All agree that any community ought to have the means of knowing, as far as may be, what the qualifications are of those who assume to practice medicine among them. A registry law, so framed as not to outrage civil rights or insult the pride and dignity of reputation, would meet prompt approval.

"Please pardon the length of this letter. You will the more readily do so when I assure you it is written with the intent of indicating the reason that makes me believe the medical law of Dakota is going to prove an utter failure."

Dr. George L. Porter, of Bridgeport, Conn., writes as follows, in regard to the law of that State:

"We have a medical tramp law, requiring from itineraat persons who would practice medicine among us the daily payment of twenty dollars. This has kept away some, but the law is easily evaded by taking up an office in some part of the State and journeying around."

Dr. W. G. Brownson, of New Canaan, in the same State, says:

"It is very difficult to get any Legislature here to curtail what the people call their rights; forgetful of what are reatly their wrongs."

As late as May last, at a meeting of the Connecticut Medical Society, a committee, of which Dr. N. E. Wordin, of Bridgeport, a Fellow of the Academy, was Chairman, had this matter under careful consideration, and presented an excellent report upon the subject.

Dr. P. H. Millard, of Stillwater, Minn., Secretary of the State Board of Medical Examiners, states:

"The act remains as passed March 15, 1883. It seems to give great satisfaction to the profession of the State. I presume this is due to the fact that our Board has enforced the provisions of the act relentlessly. Out of a profession of 1,100 in the State, fully 250 left for new fields, owing to the fact that they had no diplomas or were from fraudulent schools."

Dr. L. P. Bush, of Wilmington, Del., a Fellow of the Academy, writes to say that:

"At the next meeting of the Legislature I think that we will be able to improve a very imperfect law regulating the registration of physicians. This law was originated by a Delaware physician, and was so defective as to almost nullify our 'Law establishing a Board of Examiners,' which was passed by the Legislature of Delaware, January 29, 1818. This law, however, is still in force, so far as that no person can be admitted to membership in the Delaware Medical Society unless by presentation of a satisfactory diploma, or by a satisfactory examination by a committee of the Medical Board of Examiners, and the presentation of a thesis upon some medical subject."

The *Texas Courier Record of Medicine*, in a spasm of indignation, referring to the recent failure of legislation in that State, translates it as follows:

"The Legislature says, 'come, all ye who are burdened by little knowledge, and are heavy laden by rejected examinations; all ye refuse of Illinois, Missouri, come; come, too, the pretender and the hypocrite; come, the homœopath, the allopath, the hydropath, the no-path, the electric, and the physio-medical. The faith doctor, come. Our fields are broad and our acres wide; our waters are still, and our pastures green. Come, abide with us, bleed us, cheat us, murder us."

Dr. Henry C. Ghent, of Belton, Tex., ex-President of the State Medical Society, writes:

"The shadow of law now upon the statute books of our State is simply null and void, there being no penalty attached for a violation of the same. Texas offers the largest and richest field for the operations of the charlatan, quack and nostrum vendor of the pill now on the face of the civilized earth, of which I have any knowledge. The most sacred interests of the people demand a reformation. No man or woman should be permitted to practice medicine without first going before a Board authorized by the State, and undergoing an examination as to his or her qualifications. In my honest conviction, Alabama has the best law regulating the practice of medicine of any State in the American Union."

Dr. L. Julien Picot, of Littleton, N. C., writes with satisfaction in regard to the present condition of legislation in that State:

"I am glad to tell you that our last Legislature passed an act making it a misdemeanor, punishable by fine or imprisonment, or both, to practice medicine in North Carolina without a license from the Board of Examiners elected by the State Medical Society. The law is retroactive, as far back as January 1, 1880, and it made a great howl among the unfortunates embraced in that period. The State Society warmly congratulates itself upon the securing of this law. In fact, the bill was framed by prominent members of the Society, as we were lucky enough to have several members of the Society in the Legislature. We need no further legislation, and will be happy if we can only keep what we have already. We have exported some doctors since the passage of the law, and we have done more than this—we have perceptibly raised the standard in a certain Baltimore college."

Dr. Stephen Wickes, of Orange, N. J., a Fellow of the Academy, writes as follows:

"The bill which was passed by our Legislature, in 1880, has resulted in securing a very general registration of those holding diplomas from chartered medical colleges, but as charters are obtained by various schools of medicine, thus securing to their graduates their standing, assumed as 'regular,' it has not been of any service to the profession. The law was also imperfect in the process of convicting those who may have violated it, and it has availed but little.

"I do not have much confidence in legislative action in medicine. The Medical Society of New Jersey was so hampered by laws passed from time to time, for nearly a hundred years, that in 1866 it surrendered its charter and began its second century upon a voluntary basis. All medical laws were repealed. It only asked to become a legal corpus, and to make its own laws to govern itself as an associated body. This step was highly acceptable to all outsiders in medicine. Quacks of all sorts stood on the same footing, before the law, with intelligent, educated physicians, and it satisfied them for a time. A few years' experience proved that their expectations were not realized, and that honor and respect came to the regular profession sustaining itself upon a scientific basis, while the contrast became more marked between it and others claiming a knowledge of the art of healing. Various efforts have been made since to secure acts of legislation, without success. We now stand substantially upon the Act of 1866. I yield to no one in my ambition to promote medical progress, and to raise

the standard of medical education, but progress must come from within the profession and not by any boosting process from acts of our legislators. They are influenced by the popular clamor and not by an appreciative knowledge of the claims of science."

Dr. A. S. v. Mansfelde, of Ashland, Neb., Permanent Secretary of the Nebraska State Medical Society, writes:

"In regard to the enforcement of the law, the 'dolce far niente' reigns supreme; excepting a few instances, where persons who neglected to register were fined for such neglect. One of these cases was carried to the Supreme Court of Nebraska, and the law was sustained in every particular. After all, though, the law *seems* of little consequence; there is a quiet, barely recognizable under-current, stirring up the minds of the people and the profession, which will wash their minds free from all prejudices, and we will be successful in the end. By *we*, I mean all those who believe in purity of whatever kind, especially undefiled medical practice."

Dr. J. F. Kennedy, Secretary of the Iowa State Medical Society, says:

"We have no law in this State regulating the practice. We hope to secure such a law this Winter. The Regular, Homœopathic, and Eclectic State Medical Associations have each passed resolutions asking such a law, and appointing a joint committee to formulate and effect, if possible, a law that will require at least all practicing physicians or surgeons within the State to be graduates of a reputable medical college, or pass a satisfactory examination before the State Board, excepting, perhaps, those who have been for twelve years in the continuous practice of medicine in this State. I am one of the Committee on behalf of our (Regular) State Medical Society, and we hope, if we cannot get a perfect law, to get as nearly one as possible."

Dr. P. J. Farnsworth, of Clinton, Ia., writes that "the State is overrun with 'irregulars' from neighboring States that have a Medical Practice Act, and he ascribes the failures to secure legislation to the opposition of medical men in the Legislature. When most doctors become politicians, they ignore the profession."

Dr. William C. Dabney, President of the Medical Examining Board of Virginia, gives some interesting facts in regard to the working of the law which was enacted in that State by the Legislature of 1883–84:

"As the law now stands, much good has, I think, been accomplished. Thirty-seven graduates and two non-graduates have stood the State examinations, thus far. Of the graduates, six were rejected on the first examination, but *two* of the six have since stood a second examination, in accordance with the provisions of the law, and have been licensed. Both of the non-graduates were rejected. One of the rejected candidates (a graduate of a college in excellent standing) has commenced practicing in defiance of the law, and he will be indicted and tried during the present month. I understand his plea will be that the law is unconstitutional, and not consistent with the '*Bill of Rights*." We feel confident, however, of his conviction.

"We have reason to believe that several colleges have already raised their standard for graduation, in consequence of the passage of our law. I have been assured that this was the case, by one of the Board of Trustees of one College, and by the students of another. It is extremely desirable that further legislation should be had, with a view of expelling from the ranks of the medical profession a great number of incompetent persons who were engaged in the practice of medicine *prior* to January 1, 1885, but it would be impossible to have any such law enacted. There are some defects, too, in our law as it now stands. One of these is, that the number of examiners is too great. There are now three examiners from each Congressional District, and two from the State at large, in all thirty-two. I am glad to say, however, that this defect has not proved nearly so serious as we feared it would. No attempt will be made to amend our law at the next session of the Legislature, it being deemed best to allow the Act to get a firmer hold before agitating the matter again."

Dr. Charles D. Smith, of Portland, Me., Secretary of the Maine Medical Association, writes as follows:

"Our laws governing the practice of medicine are wretched in the extreme. At the last session of our Legislature, a committee from the Maine Medical Association urged the passage of a bill containing some provisions to that end, but it was so altered, and contracted, and emasculated, as compared with previous drafts, that when it went the way of its predecessors, and was slaughtered, no one was surprised or disappointed. I am not sanguine of any improvement in this State for some time yet. A State Board of Health was created and put in operation last Winter, but our legislators are very slow to warm up to any plan for the benefit of the public, which is proposed by the medical profession. Our lawmakers look with suspicion upon any suggestion that a doctor can have any but self-motives when he asks medical legislation. The old committee has been discharged and a new one appointed, and if they follow the example of the Committee on Health, and labor with the individual legislator, before the Legislature meets, through his family physician, and the man who holds a mortgage on his property, they may accomplish something, otherwise they will not. Our situation is now "Free Trade and no Protection."

Dr. F. H. Gerrish, of Portland, Me , a Fellow of the Academy, refers to the effort of the Maine Medical Association to obtain a registration law, and states that—

"Though the Committee on Judiciary, before which the matter was brought, was favorable to the project, so much opposition was developed by the Eclectics, Christian Scientists, and other charlatans, that it became certain that an adverse vote would be had in the house, and probably, also, in the Senate, and the promoters of the measure preferred to have the bill referred to the next legislature."

Dr. C. P. Frost, of Hanover, N. H., a Fellow of the Academy, writes as follows:

"My idea is, that the present law works about as well as any law would be likely to do. Grand Juries are very unwilling to find an indictment against a man for practicing without a license. Still, the fact that an irregular or unlicensed practitioner cannot collect fees for service, deters some from practicing in the State. Until public opinion is educated to see that laws of this kind are for the good of the people rather than for the interest of the medical profession, it will be hardly worth the while to pass any further laws on the subject. I think the profession is fairly well suited with what we have."

Dr. James A. Gray, of Atlanta, Georgia, writes in regard to the law regulating practice in that State, that—

"It is not probable that they will be changed soon, as our Legislature seems to take a delight in refusing to pass any bill suggested by the profession, or advocated by them"

The California law regulating the practice of medicine, is said, by the *Pacific Medical and Surgical Journal*, to be a failure—

"Because juries cannot be found who will convict, even where the defendant be the lowest Chinese charlatan."

Dr. Wallace A. Briggs, of Sacramento, writes as follows:

"The existing law recognizes three schools of medicine, and, consequently, provides for three examining boards. It is not enforced, *except against physicians with respectable credentials*. Eight or ten thousand dollars have been taken from the pockets of legalized practitioners of the State, without their receiving a corresponding advantage. My opinion is, that if the people want protection against quacks, they should not only provide for it, but also pay for it. Our profession should not be taxed to protect the people, either against charlatanry, or against leprosy. This opinion seems to be gaining ground with us, and a very thorough revision of the present law, I hope, will not be many years deferred."

Dr. James F. Foulkes, of Oakland, Cal., a Fellow of the Academy, writes:

"The law regulating the practice of medicine amounts to nothing, as it allows three boards, the Regular School, a Homœopathic board and an Eclectic board, and if an irregular applies for a certificate to practice, and is rejected by one board, he goes to one of the others, and never fails to get a certificate. The great majority of those on this coast have one of Buchanan's diplomas, or from some of his Western agencies."

From this somewhat mosaic-like sketch, the inference is fairly deducible that legislation upon the subject of medical practice is not yet placed upon a sufficient firm foundation to gratify the advocates of restrictive enactments; and that the obstacles to such healthful results are still operative, but not insurmountable.

BACTERIAL THERAPEUTICS.

[From *The Journal of the American Medical Association.*]

THE recent experiments of Professor Cantani regarding the effect of administering, by inhalation, a spray of bacterium termo in a case of acute pulmonary phthisis seems to be a new proof of the truth of the adage "Set a thief to catch a thief," since these experiments seem to show quite conclusively that the bacterium termo completely antagonizes the bacillus of phthisis.

According to the *Centralblatt für die medicinischen Wissenschaften*, of July 18, 1885, quoted in the *Philadelphia Medical Times*, of August 8th, a pure culture of bacterium termo was used, diluted with gelatin and meat-broth, by means of a hand spray apparatus with double rubber bulb. "The expectoration rapidly decreased, until it ceased entirely during the last few days of the experiment. The tubercle bacilli likewise soon diminished from (in?) the expectoration, and did not reappear, while bacterium termo became more and more abundant." The fever decreased very much during the last few days of the experiment, and the bodily weight was decidedly increased; in short, the patient was very much better. We are not told why the administration of the bacteria of decomposition was discontinued—nor are we informed as to the aroma of the patient's breath after having undergone this novel therapeusis for a month, though that may be left to the imagination.

The *Times* says, regarding this experiment, that it "satisfies the requirements of science, and apparently establishes it as a fact that the antagonism known to exist between the bacterium termo and the bacillus tuberculosis, may be used for therapeutic purposes *cito, tuto et jucunde.*" To our mind it also establishes another fact, not required by science, that the bacillus tuberculosis is somewhat particular as to the company it keeps. And, however much we may hereafter dread that bacillus, we must respect it for its aristocratic sentiments. Before fully recognizing it as belonging to the upper classes, however, it would be well to have some idea as to its behavior in the presence of Neisser's gonococcus and Lustgarten's bacillus; though this would not be an absolutely true index of its social standing, as these microbes move in the very best society.

The question which now arises is: Will the matter stop here; or is the time near at hand when the physician will relegate the prescription pad to the limbo of the forgotten, and make his daily rounds armed only with hand-spray apparatus with double rubber bulb, containing gelatin cultures of bacteria, labelled in proper order from abscess to zoster (and made by the improved process of some manufacturing chemist)? And if the usual number of "Physicians' Samples" are sent out, will not the doctor's office be somewhat more dangerous than a powder factory? The accidental introduction of the microbes of insomnia, into a foundling asylum, might be followed by most appalling consequences, unless the attendants were so fortunate as to be deaf. Far more dangerous than the doctor's office, however, will be the drug store (or, as it will then be called, the bacteria emporium); and it is quite probable that the manufacturing chemist will find it quite possible to insure his life at any risk.

But, perhaps, there will now be a field of usefulness for the bacterial wealth which has been unused for several years, and to which additions are being constantly made. It is not improbable that Seiffert's bacillus of influenza, the bacillus of mumps, and several other seemingly superfluous microbes will come prominently forwards as candidates for therapeutic honors. It is quite probable, also, that we may be able to exchange with the lower animals for some of their bacteria. Is it not possible that the cholera bacillus may be made to do duty as a physiological antagonist to foot-rot in sheep; or that the bacillus of hog cholera may find a field of usefulness in combating the ravages of chicken-pox? These are some of the questions almost necessarily sugguested by Cantani's experiments. And it seems that when they are settled, the medical millenium will have certainly come—and cocaine will be cheap.

By referring to the abstract of Dr. S. K. Jackson's address before the Medical Society of Virginia, (*Journal of the American Medical Association*, October 3d, p. 375), it will be seen that this plan of treatment was first suggested by him in September, 1883, at the meeting of the Medical Society of Virginia.

NASAL POLYPI REMOVED—RECOVERY AFTER EXTENSIVE ABSCESS.

By W. E. Rogers, M. D., Rexford Flats, N. Y.

[From *Albany Medical Annals.*]

MRS. GROOM, mother of Mrs. A. S. Garnsey, of Clifton Park, is 80 years of age, and for several years past has had an enlarged parotid gland on the right side, about the size of a goose egg. The size of the gland was variable and soft to the touch. Within a year past the breathing has been obstructed through the nose, and increasingly so, until she failed entirely to breathe through the nasal passage. In consequence of this obstructed breathing, the tongue and fauces became dry and cracked, the sleep interfered with, and the general health seriously impaired.

I was called to see her in May last. I discovered that the nasal passage was completely occluded by polypous growths; the right tonsil much enlarged and encroaching upon the posterior nasal passage.

I removed all the polypoid growths in the anterior nasal passage that I could reach, but as no relief followed, Dr. Norman L. Snow, of Albany, was called. He came June 8th, and succeeded in removing all the polypoid growths of the entire nasal passage, and also extirpated the enlarged tonsil. The lady endured the severe operation remarkably well, and derived much immediate relief from it. In a few days, however, the passage became entirely closed up again and apparently worse than before. The nose swelled to twice its natural size; the lachrymal ducts became stopped up; abscess of both sacs followed; the lady's sufferings greatly increased, and herself and family were discouraged.

Warm poultices were applied over the abscesses. I then commenced the use of Swift's Vectores of Iodoform and Tannin. I passed the vector up the nostril as far as I could anteriorly, and then with the finger applied the ointment posteriorly in the nasal passage. Improvement soon commenced. The Vector was applied daily, and the improvement went on rapidly, until to-day the nasal passage is fully open.

The abscesses burst into the nasal passage and discharged copiously. The polypous growths are all gone, and the enlarged parotid gland is gone also. The old lady breathes perfectly well, and has wonderfully improved in looks and feelings. To us all the result is astonishing.

THE COMPOUND-OXYGEN HUMBUG.

[From *Medical Record*, New York.]

OXYGEN has a very narrow range of therapeutical utility, however applied. It is somewhat curious that a special oxygen or compound-oxygen treatment has been able to gain so much support and extract so much money from a credulous public. Regarding this matter, Dr. Wm. B. Clarke, of Indianapolis, Ind., sends us an account of the way in which he was deceived by a person of whom he had bought an "oxygen plant." The person in question claimed that the formulæ were the same as those used by the quacks, Starkey and Palan. The following are the formulæ, *verbatim:* "Comp. Oxygen Treatment: ℞. Nitrate ammonia, 25 parts; carbonate ferri, 1 part; mix, put in retort, apply gentle heat till whole compound comes to a boiling heat, then add heat gradually, and conduct oxygen to the tank. Home Treatment of Oxygen: ℞. Nitrate ammonia, 1 ounce; chlorate potassa, 1 drachm; alcohol, 2 ounces; aqua distilled, 14 ounces; mix; one teaspoonful to inhaler full of hot water; inhale two or three times a day." By the first formula, says Dr. Clarke, nothing is produced but laughing-gas, and this is the real compound oxygen. The carbonate of iron is of no chemical import. By the second formula, nitric oxygen or nitrous oxide is evolved. The exhilarating effects of nitrous oxide, and its stimulating effect in the treatment of certain nervous conditions may account for some successes.

MALARIAL GANGRENE.

[From *Medical News*, Philadelphia.]

DR. BLANC, in a contribution to the study of malarial gangrene, concludes:

1. Cold and serious pulmonary disease should be placed among those causes which play an important part in the production of local asphyxia and malarial gangrene.

2. Exposure of those suffering from malaria—their sudden transition from warm to cold countries—may occasionally produce local asphyxia and malarial gangrene.

3. The anti-periodics, quinine and arsenic, seem to constitute the best treatment for the complications attending the disease.

They may arrest and cause the local asphyxia to disappear completely; they may check and limit the gangrene, but here the specific action seems less sure and rapid than in the state of asphyxia. The well-known difference in the action of quinine upon visceral lesions, according as they are congestive or sclerotic, is here observed, though in mild degree.

4. From a surgical point of view in the treatment of malarial gangrene, it is advantageous to operate only when the progress of natural elimination has ceased.

The gangrene being dry, danger of infection is remote. The difficulty of at first distinguishing parts which are mortified and those simply the seat of prolonged local asphyxia, is a further reason for tardy operation.—*Archives de Médecine et de Pharmacie Militaires*, November 1, 1885.

AVENA SATIVA IN NEURASTHENIA.

By S. J. Pollock, M. D., New Hampshire, Ohio.

[From *Medical Summary*.]

Editor Summary:—I wish to call the attention of my medical brethren to the therapeutic effects of *Con. Tinc. Avena Sativa*. My attention was first directed to it in a case of neurasthenia in a lady aged thirty, who suffered with cold extremities and pain on top of the head, had not slept for three weeks and who was almost a physical and mental wreck. I gave her the *Con. Tinc. Avena Sativa* ten drops three times daily in hot water and fifteen drops, on retiring, in cold water; speedy relief was soon obtained.

The next was a case of confirmed opium habit of several years standing in a woman fifty-six years of age, who had used morphia internally to allay pain from ulcers on her legs and ankles, and had sprinkled it on the sores after washing them, besides using whiskey *ad lib.* I treated her with ten drop doses in hot water three times daily and fifteen at night in cold water, and in less than a month she had lost all desire for opium or whiskey, and now in over a year's time she has used neither one. In cases of neuralgia I have used it, and have not been disappointed in a single case.

Wherever there is a lack of nerve force, impaired vitality, loss of sleep, nightmare, and all the sequela of a broken down constitution, I find *Con. Tinc. Avena Sativa* an important aid in building up and sustaining the human form divine. One case more is that of recent date, and of a young man about twenty-three years old, who has been a barkeeper in his father's saloon since he was able to dispense the ardent, and who has been a hard drinker for at least two years past, and when he was taken down with nervous debility and "thick-coming fancies that kept him from his rest," and had not eaten anything for over a week, I gave him *Con. Tinc. Avena Sativa* as before in hot water, only giving it a little oftener, as I deemed necessary, and in connection with a sedative composed of potass. bromide, ammon. bromide, lady slipper, etc. His temperature for about the first three days reached nearly 104°. By alternating the sedative with Avena Sativa I soon got him asleep and avoided the horrors attendant upon a case of delirium tremens. Of course, in this case I do not give all the credit to Avena Sativa, but I do say and am satisfied it was an important element in the success of the case. In this case I would also observe there was not a drop of alcoholic stimulus or a grain of opium given, and I give *Con. Tinc. Avena Sativa* the credit of obviating the necessity of administering either. I would be pleased to have the profession generally give this remedy a fair trial in cases of opium and drink habit, and also in cases of sexual debility. I am satisfied they will not be disappointed.

REVIEW.—"DISEASES OF THE NOSE AND THROAT.—SAJOUS."

By Ernest W. Cushing, M. D., Boston.

THE announcement of a new work on laryngology strikes the medical world somewhat as the news of a new "parallel" railroad does the business community, as, to say the least, uncalled for. But an examination of Dr. Sajous' new work shows good reason for its existence.

It is not necessary to compare it with the several excellent works already extant, in regard to the many good points in which they agree, such as terse and accurate description of disease, clear and judicious rules for treatment, elaborate illustrations of instruments, succinct anatomical explanations. All this has been done so well already that it would be hard to improve on it, and it is sufficient to say that this work is fully up to any other in all these particulars.

But there are some points in which this book has an individuality and excellence all its own, which amply justify its appearance and repay its perusal.

In the first place, the author is also the artist, and avowedly has tried to assist the student, by his plates, to a better understanding of the subject than he could get from mere description. And in this he has certainly succeeded, especially in the question of the rhinoscopic image, which is so puzzling to students and others.

The plates, drawn and colored by Dr. Sajous himself, show a vast amount of careful observation and patient labor, with gratifying results.

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* Diseases of the Nose and Throat. By Charles E. Sajous, M. D., etc. 100 Chromo-Lithographic Illustrations, and 93 Wood-cuts. Philadelphia. F. A. Davis, Attorney, 1217 Filbert Street. 1885. 450 Octavo pages.

The anatomical plates, confessedly taken from other works, are excellent, and it is rather difficult for one who has not Lushka's work, to find such clear and careful anatomical delineations.

Another feature of the work is the illustration of a large number of instruments invented or improved by Dr. Sajous. Many of these are extremely ingenious and convenient, and it is evident that the author has given his careful study to every instrument and appliance connected with his subject, even to getting up a galvano-caustic battery.

In some cases, the changes introduced into former appliances seem hardly sufficient to warrant figures of them, marked as the author's instrument, but in the text due credit is given to the original inventors, and the alterations can fairly be considered as improvements. Perhaps the most important alterations are those of Jarvis' snare, by which the wires do not need to be drawn clear through the whole tube, but are fastened near the eye; the tonsillotome, which allows blades of different sizes to be fitted on one shank, and can be more easily cleaned than Matthieu's, and the universal handle, admitting of galvano-caustic, as well as other attachments. A very neat snare, for nasal polypi, is also shown, so arranged that the wire loop can be conveniently enlarged and diminished *in situ*, and will not kink if drawn home without catching any growth.

A neat arrangement for feeding with a tube and bottle is also figured, and in general, the whole system of operative instruments and appliances is brought up to date and perfected.

However, it is not on this point that the author lays any stress, and it is not the invention or improvement of instruments that gives a permanent reputation. Good work can be done with the simplest instruments, by one who thoroughly understands his subject and knows just what he wants to do.

The chief credit and peculiarity of this work is the very thorough, yet concise way in which the surgical treatment of diseases of the nose and upper pharynx is presented.

Instead of the nose being a subdivision of laryngology, we here see it treated of as the chief and principal part of the subject, as it should be, at least in this climate.

In Europe, there is far less nasal disease than here, and far more frequently are polyps of the larynx found there than in this country. It is not too much to say that for difficulty of diagnosis, and in delicacy of manipulation and manual skill requisite for treatment, the diseases of the nose stand fully on a par with those of the eye.

It is only the overwhelming importance of the latter as an organ of sight, which prevents this fact from being generally recognized.

About three-fourths of this work are devoted to the nose and pharynx, and one-fourth to the larynx and trachea, or about 300 and 100 pages respectively, and the various surgical operations required to remove morbid growth or hypertrophies are not only clearly described, but illustrated by plates in a very lucid manner.

In every case the advantageous combination of artist, surgeon and inventor, can be seen giving an individuality to the work, which, with a clear and concise text, makes it very easy reading.

The author's views on hay fever are set forth under the head of "periodical hyperæsthetic rhinitis," substantially as explained in the review of his work on hay fever, in the last number of this magazine. Both here, and in the chapter on acute coryza, there is no attempt made to theorize as to the possible influence of micro-organisms in the dust inhaled, and acting as an excitant. Probably the omission here as in respect to tubercular laryngitis is intentional, as the book is meant to be eminently practical, and yet it is to be hoped that by the time the next edition appears the author will be moved to give this question the attention it deserves, for the whole field of the influence of germs on the diseases of the nose and throat is waiting to be cultivated, and is sure to yield important results in regard to treatment. In fact, it will be observed that the author uses antiseptics very freely in the various affections of the nasal mucous membrane, and, although their action is accounted for by their astringency, it is a serious question whether they are not often beneficial rather by killing the germs which are so often the cause of disease.

Even in the case of hay fever, accepting the author's facts that galvano-cautery of all the sensitive spots in the nose is the best treatment, it is a fair question whether it acts by obtunding nervous hyperæsthesia, or by killing off colonies of germs infesting favorable spots of the mucous membrane.

Naturally this work gives to cocaine the importance it deserves, and it is hardly too much to say that it has modified the treatment of every disease of this region.

In general, however, it can be seen that the author does not rely on medication, except as a palliative and detergent, whenever the various affections can be traced to causes capable of surgical treatment, and thereby he contributes not a little to raise laryng-rhinologists from the plane of "catarrh doctors," to a level of full equality with opthal-

mic surgeons. It is greatly to be hoped that the profession and the governing bodies of hospitals will come to see this matter in its proper light.

In conclusion we can say, in the words of Longfellow, to him who can fully master the good counsel and instruction contained in this book.

"Felix venter quem intrabis,
Felix guttur quod rigabis,
Felix os quod tu lavabis,
Et beata labia."

168 Newbury Street, Boston.

OFFICIAL FORMULÆ OF AMERICAN HOSPITALS. By C. F. Taylor, M. D. Philadelphia. *Medical World*, 1520 Chestnut Street. 1885. Pp. 238. Price, $1.00.

This publication presents, in a very neat and convenient form, most of the formulæ in use in the principal hospitals of America.

The busy practitioner will find in this little hand-book many very valuable hints and suggestions useful in private practice.

For those interested in the treatment of disease, as pursued in the various hospitals of our country, this will be found a very convenient reference book.

The volume contains 238 pages, of good quality of paper, printed in a clear and easy type, and is nicely bound in cloth. A convenient size to carry in the pocket, if desired. H. M. W.

MALARIA. By James Henry Salisbury, A. M., M. D. McNaughton Prize Essay, 1882. Awarded by the Albany Medical College Alumni Association. Ten Illustrative Plates, with Explanations of the Figures. New York. William A. Kellogg. 1885. 152 octavo pages.

OLEATES. An Investigation into their Nature and Action. By John V. Shoemaker, A. M., M. D., Etc. Philadelphia. F. A. Davis, Attorney, 1217 Filbert Street. 1885. 121 12mo. pages.

PAMPHLETS RECEIVED.

MEDICAL LEGISLATION. The Annual Address, Association of American Medical Editors. Henry O. Marcy, A. M., M. D., Boston.

CLINICAL NOTES. On the Local Treatment of Diseases. Charles L. Mitchell, M. D., Philadelphia.

MONOGRAPHIA SYPHILITICA. A journal devoted to the treatment of diseases of the blood. Geo. W. McDade, M. D., Montgomery, Ala.

MISCELLANEOUS REPRINTS. James Craig, M. D., Jersey City, N. J.

A CASE OF FATAL EAR DISEASE. Charles J. Kipp, M. D., Newark, N. J. From the transaction of the American Otological Society, 1885.

OBSERVATIONS UPON THE MUTUAL RELATIONS OF THE MEDICAL PROFESSION AND THE STATE. By Donald Maclean, M. D., President Michigan State Medical Society. Published by order of the Society.

THE GERMAN THEORY OF DISEASE AND ITS RELATIONS TO SANITATION. By P. C. Barker, M. D. Morristown, N. J. From the Transactions of the Medical Society of New Jersey.

"Clinical Notes—Opium Addiction;" The Cincinnati Lancet Press Print, 1883.——"The Curability of Opium Addiction;" Quarterly Journal of Inebriety, 1883.——"Treatment of Opium Addiction;" St. Louis Courier of Medicine, 1883.——"Neurotic Pyrexia, with Special Reference to Opium Addiction;" New England Medical Monthly, 1883.——"Opium Addiction among Medical Men;" Medical Record, 1883.——"A Personal Narrative of Opium Addiction;" Medical Gazette, 1883.——"A Somewhat Unusual Case of Opium Addiction;" The Southern Clinic, 1883.——"The Personal Experience of an Ex-Opium Habitué, by M. D.;" Medical Record (no date). ——"The Genesis of Opium Addiction;" Detroit Lancet, 1884.——"A Case of Double Narcotic Addiction—Opium and Alcohol, Imbecility, Recovery;" Canada Lancet, 1884.——"The Prevention of Opium Addiction;" Louisville Medical News, 1884.——"A Curious Case of Opium Addiction;" Maryland Medical Journal, 1884.——"Prevention of Opium Addiction, with special reference to the value of Galvanism for Relief of Neuralgic Pain, Canadian Practitioner;" New Orleans Medical and Surgical Journal, Boston Medical and Surgical Journal, and Iowa State Medical Reporter, 1885.——"The Treatment of Opium Addiction;" G. P. Putnams' Sons, Price fifty cents (a notice), 1885.——"Avena Sativa, in the Treatment of Opium Addiction a Therapeutic Fraud, a Delusion and a Snare;" Medical Bulletin, 1885.—— "Private Treatment of Opium Habitués, a Card Mentioning Method, Duration of Treatment, Terms, Number and Character of Patients wanted and advantages offered."

All of the foregoing are by Dr. J. B. Mattison, 314 State Street, Brooklyn, N. Y., who will doubtless be pleased to send copies to any applicant.

RELATIONS OF CERTAIN BACTERIA TO PUERPERAL INFLAMMATIONS.*

By E. W. Cushing, M. D.

IT is with no little hesitation that I venture to offer here the results of some observations which I made last Summer at Vienna, on the relations of bacteria to puerperal, septic processes. It is very probable that the work has been better and more thoroughly done and more fully reported by others, but I trust that the results of personal investigations, even if very limited, may be more acceptable here than elaborate abstracts of the work of others. Nevertheless, I must preface my observations by a short description of the bacteria which, thanks to the labors of Ogston, Rosenbach and Passett, are called septic, in distinction from numerous other varieties which are either harmless to man, or if they cause disease yet do not induce suppuration, pyæmia nor septicæmia.

Of course, it has long been assumed by the disciples of Lister that infection of wounds is caused by germs, and on this base the whole fabric of antiseptic surgery has been built. But it is only recently that the strict rules and methods of Koch have been applied to proving the theory of Lister to be true by demonstration.

I have not space here to say much concerning the nature and habits of these organisms. They are well described in the works of the above authors, and I subjoin a plate from Passett's recent work, showing the figures of germs as found in acute abscesses in man. That they must be considered as the causes of the suppuration has been shown by a most careful series of experiments on the lines laid down by Koch, and by following his methods.

They are usually present either singly or together in acute suppurations.

They can be bred in pure cultures for successive generations, using always a quantity so infinitesimal to sow each successive culture that it is certain that none of the original virus remains in the cultures.

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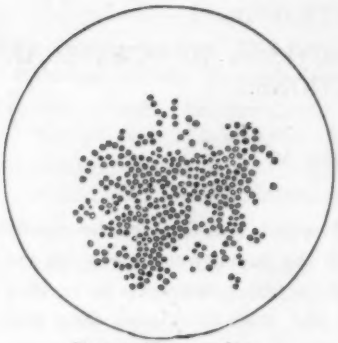
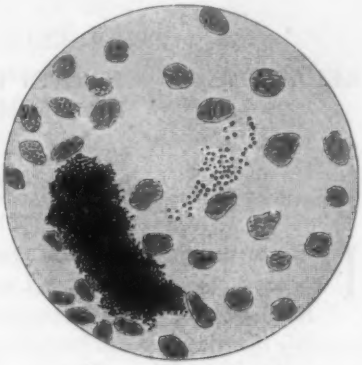
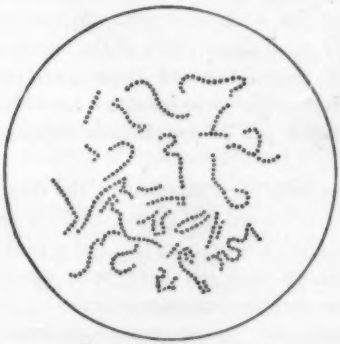
* Read before the American Academy of Medicine at its annual Meeting in New York; Oct., 1885.



Passett, *Fig. a*, 1,600 x.

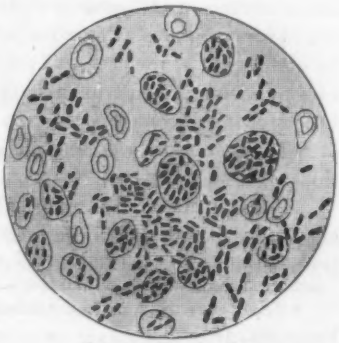


Passett, *Fig. b*, 1,600 x.



Passett, *Fig. c*, 1,600 x.

Passett, *Fig. d*, 1,600 x



Passett, *Fig. e*, 1,600 x

From cultures many times removed from the original, inoculations in animals will produce the original disease, viz., acute abscess, or blood-poisoning, or both.

In animals dying of disease thus induced, the original organisms and no others are found, and so the process can be carried on ad infinitum.

Without entering on the question of the relative importance of the work of different authors, or detracting from the great merit of Rosenbach in his original work in this matter, I quote the classifications of Passett with his plate.

Streptococcus.

Staphylococcus pyogenes aureus.
" " albus.
" " citreus.
" cereus albus.
" " flavus.

Bacillus pyogenes fœtidus. *

NOTE TO EXPLAIN PASSETT'S FIGURES.

Passett, *Fig. a.*—Staph. pyog. aureus, on cover glass, seen in water; from Agar-plate 48 hours old.

" *Fig. b.*—Section of rabbit kidney. The rabbit died two and one-half days after infection of Staph. pyog. aureus in jugular vein, staph. seen interstitially and in tubules.

" *Fig. c.*—Streptococci of pus from gelatine culture, seen on cover-glass in Canada balsam.

" *Fig. d.*—Bacill. pyog. fœtidus from gelatine culture.

" *Fig. e.*—Bac. pyog. foet. in section through lung of guinea pig, which died twelve hours after injection of a gelatine culture of the b. p. foet. into its jugular vein.

In all these figures the artist has doubled the original dimensions, thus giving about 1,600 diameters instead of 790 in Passett's plate.

As for the streptococcus, or chain germ, suffice it to say that no differences in form or manner of growing can be detected between those found in abscesses and those described by Fehleisen as found in, and bred from cases of erysipelas. Also the chain germs described by Löffler as found in some cases of diphtheria are precisely similar.

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* Messrs. J. W. Queen & Co., 924 Chestnut Street, Philadelphia, inform me that they have for sale microscopic preparations of the above, and of various other bacteria; also, sterilized nutrient gelatine, and agar-agar, in test-tubes, for making cultures of bacteria.

They are all alike under the microscope, act alike with staining reagents, grow alike in gelatine, and have similar effects on animals when inoculated, while no one dares to try inoculations on man for fear of fatal results.

The staphylococci, or cluster-of-grapes germs, are all alike when stained under the microscope, but can be divided as above by breeding them in gelatine, etc., on flat plates, so that each kind has a chance to grow and develop its color apart from the others. The last two kinds do not set up suppuration in animals but are found in human pus, according to Passett, who kindly showed me his preparations in Munich.

The small round germs, or cocci, of which the chains in one form or the clusters in the other forms are composed, are about ·58 of a micrometre in diameter. Perhaps it will be easier to comprehend if I say that when magnified 800 times they look about as large as a period point of this print.

The bacilli pyogenes fœtidi, or foul-smelling rods, are about the same in width and two to three times as long. They are found in foul abscesses, and when bred in gelatine impart to it the bad smell, no matter through how many generations the cultures are carried. All of these multiply by fission or splitting in two, each part soon becoming as large and perfect as the parent. Allowing that under appropriate conditions each divides hourly, we have the well-known problem of geometrical progression, so that if at the end of three hours there are eight, at the end of twenty-four hours there will be sixteen and one-half millions, more or less, and in a week a number requiring over fifty figures to express it. As each one either excretes a poisonous material, comparable for activity and deadliness to snake virus, or forms it from the substances on which it lives, it is no wonder that if they fairly get into the fluids of the body and the general circulation, the mortality is terrible.

As a rule, they do not make the gelatine fluid in cultures, they grow at ordinary temperatures, and are not necessarily derived from previous suppurations.

The last point is of immense importance, as no one can tell when he may get them on his fingers or instruments.

It might be assumed as they grow so readily in all sorts of media and at all ordinary temperatures, and are extremely tenacious of life when dried, that they would be found independent of previous suppuration and Passett has shown this by actual search.

In regard to their tenacity of life, Rosenbach states that old cultures of staphylococci, quite dry and black, on being moistened, were as

active as ever, and as capable of setting up infection. There is reason for supposing that when once dry, these low germs can exist indefinitely with their evil powers latent but not destroyed. I said above that these organisms, or some of them, are usually found in abscesses. Practically, it might be said that they are always there, and they can be bred with ease and certainty from all *acute* suppurative processes.

Still it is not claimed that suppuration cannot occur without their presence, for it has been shown that croton oil, even when most thoroughly sterilized, will produce suppuration. The method of showing this is to introduce under the skin of rabbits fine glass tubes hermetically sealed, containing croton oil. This is done with full antiseptic precautions, and when everything has healed, the tube is broken subcutaneously and an abscess ensues. But the matter contained in the abscess has no germs in it, neither will it set up abscesses nor blood poisoning if inoculated into other animals.

With this very imperfect sketch, I will leave the subject of septic bacteria in general, to describe certain imperfect observations which I have attempted, in order to ascertain whether the puerperal imflammations are caused by the same agencies as other suppurations and blood poisonings, or are distinct and *sui generis*.

The question is of importance because such affections have been classified as a distinct disease, viz., "puerperal fever," supposed to be epidemic in the air, like smallpox for instance, and to prevail in certain places and at certain seasons owing to some mysterious epidemic influence.

During nearly three months of this year (1885), I endeavored to be present at the autopsies of all women who died in the General Hospital at Vienna, of puerperal diseases, or after gynecological operations; and in septic cases, whenever practicable, I took advantage of the courtesy and guidance of Prof. Kundrat, and of his accomplished assistants, Drs. Paltauf and Kolisko, to examine the fluids and organs for bacteria. I wish to express my gratitude to these gentlemen, and may here call attention to the many advantages for pursuing practical work in bacteriology in the Pathological Institute in Vienna. By the energy of Prof. Kundrat, the accommodations have been recently much enlarged, and a room specially fitted up for bacteriology, where Dr. Paltauf, who speaks English, gives regular courses to physicians, besides which at least three other courses are given elsewhere in Vienna.

The great advantage of an immense choice of fresh material, learned instruction in pathology, and skilful guidance in the technique

of bacteriology, all under one roof, is difficult to find elsewhere. Verily:

"Es giebt nur eine Kaiserstadt
Es giebt nur ein Wien,"

so far as concerns opportunity to employ all one's time profitably in the study of all, or various, branches of medicine. I do not wish, however, to detract from the great merits of Berlin as a place where each department of medicine is carried to the highest degree of perfection possible, particularly the subjects of bacteriology, antiseptic surgery and gynecology.

The advantages of Vienna, however, as a place for study, lie in the concentration of material, the arrangement of the courses, and the excellence of the teachers, and most of our countrymen studying abroad find that these advantages are sufficient to cause them to spend the greater part of their time there.

I approached the subject of puerperal fever, so-called, somewhat influenced or prejudiced by the opinions on that subject so ably set forth by Prof. Barker in his classical work, but was soon convinced that all the cases which I could examine, post-mortem, supported the view which I believe is usually held and taught in Germany and Austria, viz., that puerperal fever is the result of an invasion and multiplication of bacteria, arising from infection of the uterus or abraded vagina.

Under this view, what is called septicæmia would be considered merely as a symptom of the rapid entrance into the circulation of poisonous products of bacteria.

As this paper is rather intended as a means of inducing a discussion of the subject, than as an attempt to dogmatize or strictly to prove anything, I shall first mention a few facts which seem to have some bearing on the question, and then I will briefly describe a very few cases, or autopsies, and show some microscopic specimens of bacteria as found in the secretions, or fluids, examined.

Of course, even assuming that puerperal fever is caused by bacteria, very little light is shed on the practical question of how it is "caught," unless the mode of infection can also be discovered.

For it is perfectly conceivable that bacteria, or their spores, may be blown about as dust, and thus come in by an open window, and perhaps be inhaled, or be wafted into the vagina, and so fill for the scientific mind the place of the time honored idea expressed by "catching cold."

Now so many cases occur where direct infection cannot be shown, that this idea of infection by atmospheric germs has taken a strong hold on the profession and public, and is, of course, at the root of Listerism, spray, etc. It is too wide a question to discuss now whether there is much basis for this belief. It is certainly a comfortable doctrine, and it would shake the profession to its foundations if it were ever assumed by the doctors, and taught to the public, that for every unlucky case of puerperal fever and pyæmia some one were to blame for criminal carelessness; that in all such cases a diabolical coccus had hidden under a finger-nail or on a sponge or syringe and had directly poisoned the patient.

And yet, from my very imperfect observations of the natural history of the bacteria, found after death, in such cases, I should always regard the theory of direct infection more probable than that of dry septic dust in the atmosphere, that is in the general out-door atmosphere, and a contrast of the habits of the hospital assistants and students at Berlin and at Vienna merely strengthens this view.

For, as I will shortly explain, it seems to me a sheer impossibility that the Vienna lying-in and gynecologic wards could be as free as they are from septic diseases, if the germs thereof could readily be carried about in the air at large.

In Berlin, the most extraordinary precautions are observed to prevent the introduction of any septic germs carried on the hands, or even in the hair or clothing of those present at births or laparotomies, and, besides injunction as to cleanliness of hands, person, linen, etc., a most absolute promise is required of all proposing to be present as above, that they shall not go to any autopsies or pathological institute, nor visit septic cases.

The spray is used very thoroughly at operations, and everything is done which could be suggested by the belief or knowledge that septic bacteria or their germs are abundant in the air and easily portable in the dry state.

If this were really and practically the case, however, it would hardly be possible or conceivable that the great Vienna hospital should be and remain practically free from puerperal fever, and that the frequent laparotomies should show such good results as far as sepsis is concerned, for not only are the students present in the lying-in wards to be seen every forenoon at the autopsies, but the responsible assistants who perform the obstetric operations make it a rule to be present at the section of any case dying in their wards.

And this is not all, for the chief assistant of each division gives every afternoon a practical course of obstetric operations on the cadaver, and with no protection, except a rubber cot on each forefinger, drags badly-corned babies through the pelvis of a very stale cadaver, or demonstrates the ghastly realities of craniotomy and decapitation.

In an hour he may have to perform version on the living woman. Why does he not infect her? Practically he does not, of that there is little doubt, for the septic cases in the hospital do not originate there, but are sent in already in fever, to be delivered, after having been worked over outside, sometimes for several days, by mid-wives and doctors.

By the courtesy of Dr. Pritzl, First Assistant of the Clinic, I was enabled to watch pretty closely for cases of infection caused by assistants or students, and to observe the conscientious prophylaxis of the assistants. Although as a system, it is theoretically very dangerous, yet practically no ill results seemed to arise.

The assistants take a bath and change their clothes after their operative course on the cadaver, for the rest safety is sought and found in *thoroughly cleaning and disinfecting the hands and wrists before making any and every vaginal examination*, using soap, water, sublimate or permanganate of potash, and nail brush, again and again, with what to scoffers seems damnable iteration.

Laparotomies are done without spray, by Prof. Braun, with the same assistants who have charge of the labors as well as of operative courses on the cadaver, and in presence of a class of 100 or more, fresh from all sorts of wards, or from the pathological institute, seated in an amphitheatre, but not touching the patient or instruments. Yet there is very little sepsis. Of the last fourteen laparotomies of the course, done in the first two weeks of July last, all recovered but one, who sank, without fever, after the removal of a huge sarcoma of the ovary. Of course, every conceivable precaution is used to disinfect the skin of the abdomen, and the hands, sponges and instruments of the operators, but there seems to be no fear of dry germs in the atmosphere, and no reason to think that infection actually occurs in this way.

In a case which I shall shortly describe, where sepsis and death followed the removal of a fibroid polyp of the uterus, I believe it probable that the infection came from some of the numerous students who made digital examination just before the operation commenced.

The fact that such immunity from septic infection exists, where assistants and special students are continually handling the cadaver,

implies that thorough cleansing and disinfecting of the hands is a sufficient precaution and, perhaps moreover, since such disinfection would sometimes by accident be incomplete, that the bacteria found in ordinary cadavera (for, of course, those dying of septic maladies are not used for instruction) are not usually sufficient to set up puerperal or septic processes; and, I think it probable that this may also be true, although, of course, it would be unjustifiable to attempt directly to prove it; for I found, as far as my observations went, that in puerperal cases there was regularly present one or the other of the above kinds of micrococci, each very definite and breeding true in gelatine, viz., the streptococci or the staphylococci described by Rosenbach and Passett as the active agents in the infectious diseases of wounds, or the bacillus pyogenes fœtidus.

The process seemed to be an inoculation of the uterus or abraded vagina (or the fluids or parts of placenta retained) with one or the other of the above varieties of micrococci; then emigration in purulent infection of the tissues adjacent, with formation of abscesses, in cases where the system tried to free itself from the invasion; later, or in some cases primarily, the micrococci were taken up by the veins, forming colonies in the softened thrombi, and thence were carried to the lungs, or joints, or other seats of pyæmic, or so-called metastatic, abscesses.

When infection takes place, it arises either from wounds or rents in the genital tract, or by absorption from surfaces not wounded but laid bare by the process of parturition.

In the former case, the infection is apt to be rapid, to run quickly over the pelvic areolar tissues, and end fatally with great rapidity.

"Where there are no wounds, the process may be also rapid, and here on examination hardened veins may be felt in one of the broad ligaments. In a few hours these are surrounded by hard exudations, which soon soften down, and with an overwhelming general blood poisoning, the patient dies pyæmic. Generally, however, the process instead of spreading by the veins, goes on by a creeping infiltration of the parametric areolar tissue with symptoms of more or less rapid septicæmia, according to the acuteness of the infection, the resistance of the organism and the treatment. The lymph glands offer some resistance, but it is insufficient, and the infection spreads, destroying everything in its course; usually nothing resists it, muscles, fascia, vessels, and glands are infiltrated and softened, and at any time the micrococci may pass into an eroded vein and terminate the process fatally, or by a

slower spread the phlegmon may increase until it reaches the peritonæum; or, happily, the mass becomes circumscribed by thick abscess walls, and begins to point towards the vagina, bladder, rectum, or abdominal walls; in this way it may be evacuated spontaneously, or reached by the knife, or troicar, and drainage tube of the watchful practitioner."

Virchow has given a most thorough description of the anatomical processes here considered. (V.'s Archiv, 23 Bd., 1862, 3 and 4 Heft, S. 415.)

Also Freund, in his new and monumental work, "Gynækologische Klinik," S. 238, describes the course of the disease as above, and insists on the distinction between the condition of the sheaf of vessels in the broad ligament in septic and in ordinary phlegmons.

In the first, *Plate A*, they are infiltrated, separated and their sheaf is broken up and destroyed, while in ordinary phlegmons the latter is preserved, although compressed or deformed, *Plate B*.

I subjoin two figures taken from Freund's work, to which I shall again refer.

(SEE PLATES A, B.)

Of course, it is *conceivable* that the infection in such cases is quite accidental, occurring from the micrococci floating in the air as dust, and in fact the researches of Passett show that the stephylococcus can be dried and yet preserve its life and power of development, and, moreover, that it exists independent of the human body; as, for example, in kitchen-sink water and in stale butcher's meat, and there is little doubt that wounds may be infected by this organism, either directly from the air or by its being deposited from the air on dressings or instruments, particularly in hospital wards where there have been cases of sepsis prevailing. But the more frequent organism in puerperal infections is the streptococcus, which does not appear to be as commonly met with apart from diseased persons, and their surroundings, and it seems very improbable that either of these varieties can get into the uterus except by direct importation, while no one now considers infection by inhalation as worth discussing. The fact is now established, at any rate, that, when hands and instruments are kept surgically clean, and no direct infection is allowed to occur, puerperal fever is abolished in properly-conducted hospitals, as far as concerns women who come into them before labor commences. As far as I could learn in Vienna and Munich, no cases, or almost none occur, except in women who are sent in already infected and in the

PLATE A.

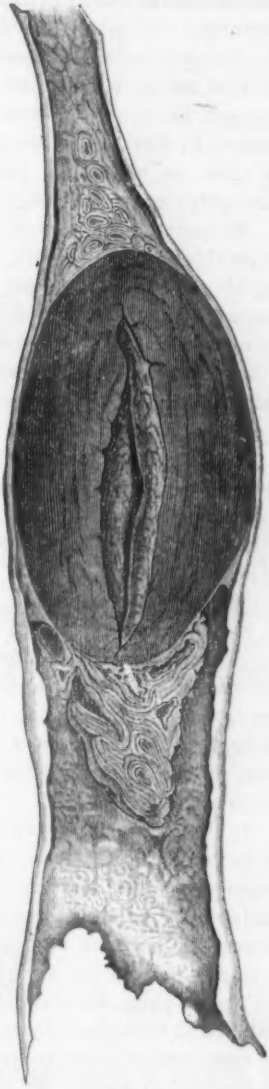

PLATE B.

throes of difficult labor. Yet the windows are open ; there is puerperal fever, so-called, always in the city ; there is free coming and going in the wards.

To my mind the inference is irresistible that puerperal fever does not exist as an endemic or epidemic disease in the sense formerly supposed, but is only a name for the symptoms of an infection of the puerpera by direct carelessness or uncleanliness of somebody, let us say the nurse, as we would gladly suppose that physicians are *always* thoroughly careful and surgically clean.

Moreover, the source of infection is no mysterious aroma or miasma, inseparably connected with the nurse or physician. It is solid and tangible and usually under or around the finger nails, and can be removed by soap and water, by baths and nail brushes, or killed by a 1 to 1,000 solution of sublimate, or by carbolic acid in two ppc. solution or by permanganate of potash, etc. Clothes can be sterilized by baking them in an oven for an hour or more at a temperature just short of 300° F., where they begin to scorch.

The day is at hand when the presence of chains of streptococci in a puerperal woman will be considered a disgrace and dishonor to her accoucheur, and this standard is already attained in surgical operations in the best hospitals. I do not say that at present all such accidents, so-called, can be avoided, but I am sure that there will be a more critical spirit in the public as well as in the profession ; less talk of bowing to the visitations of an inscrutable Providence and more reviling of negligent doctors, and I trust more care in selecting properly-trained nurses. Deliveries at home ought to be at least as safe as those in public hospitals. Five or even three years ago they were incomparably safer, now I know that in the *best* public hospitals, the results are better than in the average home, provided not only death but lighter cases of septic pelvic inflammation are included.

In the bodies examined were found in all cases, one or several of the three septic bacteria, streptococcus, staphylococcus, or bacillus pyogenes fœtidus, alone or in combination. The most constant, and usually occurring alone, was the streptococcus. Less frequent in the puerperal process, but more common in peritonitis after operation, was the staphylococcus.

The B. pyog. fœtidus did not occur alone, but was found twice in combination with staphylococci in cases of which I will speak more fully. The cases were not numerous enough, nor do I have sufficiently accurate histories to warrant me in drawing any conclusions as to compara-

tive frequency ; but they seemed fair average cases, and I will briefly report what I found, my intention being rather to show the specimens, as average samples of what usually occurs, than to enter into any argument to prove that bacteria, and nothing else, are always the cause of septic processes, a fact which personally I believe, but which cannot be demonstrated in a forty-minute paper.

Fig. 1. 800 x.

First I show, *Fig. 1*, for purposes of comparison, streptococci of erysipelas from a culture in meat-water-peptone gelatine. You will see micrococci always in pairs, forming chains or resembling strings of beads. Some chains, however, are much larger than the others, and the links form short rods, each rod being just about to divide into two members. The difference in the size of the different cocci is quite noticeable.

Fig. 2. 800 x.

I next show, *Fig. 2*, similar chains from a phlegmon of the arm, in a case of paralytic dementia, where the infection had resulted from a scratch, setting up a diffuse cellular inflammation.

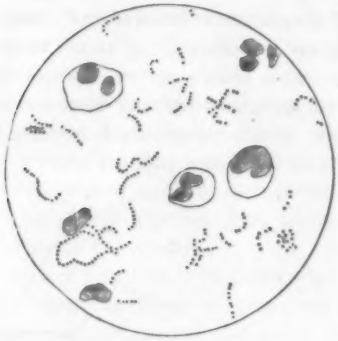

Fig. 3, 800 x.

Having observed these, please look at this preparation of pus, *Fig. 3*, from the knee-joint of a young woman, who died some two weeks after delivery, with obscure symptoms of fever and stiffness in the neck, with moderate pain in right knee. At the autopsy, the uterus was not apparently diseased, nor was there any pelvic abscess, but the right sterno clavicular articulation and the right knee-joint were full of creamy pus, which looked laudable, but was filled with chains of streptococci.*

I will here state that every care was used in taking the specimens examined; the skin was well washed, also the knife used, and the pus was aspirated into capillary tubes, which had been sterilized and sealed beforehand. The examination of the pus, or blood, was made at once, so that there is no doubt that whatever you see came from the interior of the bodies examined, and is not a result of accident or carelessness.

This case represents a class where infection has occurred usually from the hand of the physician, or nurse, and where death results without noticeable pelvic inflammation, or decomposition in the uterus. The resemblance of the chains to those of erysipelas is very interesting in view of the fact, so well established, of the infection of many puerperæ by physicians who have taken care of cases of erysipelas. This fact,

* Dr. Biggs, of the Carnegie Laboratory, New York, kindly furnishes the following description. "In a case of low septicæmia following confinement, a suppuration of the right knee-joint developed about two weeks after delivery. After death, the pus in the joint was found to contain a pure form of streptococcus. At the temperature of the human body, this germ grows extremely slowly upon agar-agar, forming a very delicate, transparent, and easily perceptible layer upon the surface of the agar. It also grows very slowly in gelatine, and only reaches a very moderate development when the growth ceases; it induces slight liquefaction of the gelatine." Dr. Biggs had no opportunity to make experiments with it on animals.

so well described by O. W. Holmes many years ago, in his work, entitled "Puerperal Fever a Private Pestilence," and so often noticed since, was well illustrated by Dr. H. O. Marcy, who last summer reported five consecutive cases of puerperal fever seen by him in consultation, where the physician who attended them all consecutively had first had charge of a case of facial erysipelas. The last of these cases developed cutaneous erysipelas around the buttocks, and from the fluid in the blebs which were developed Dr. Marcy reports that he cultivated chains of streptococci. Or to go back to the first authorities, let us remember the aphorism of Hippocrates,

Ἢν γυναικὶ κυούσῃ ἐρυσίπελας ἐν τῇ ὑστέρῃ γένῃ θανατώδες

"If a pregnant woman get erysipelas in her womb it is fatal."

It is interesting to note, in connection with the suppuration in the knee-joint above mentioned, that Löffler,* in his experiments with pure cultures of streptococci, repeatedly found that, after injecting them into the veins of the ear in rabbits, abscesses formed in the joints of the hind legs of the animals, which, being opened, were found to contain streptococci.

The next case to which I shall call your attention came into the hospital feverish, and was delivered, and as the pyrexia continued, she was sent to one of the medical clinics, after a few days, to avoid danger to the other lying-in women. The lochia became extremely offensive, the fever and chills continued, the skin grew yellow, and she died in about a fortnight, with all the symptoms of pyæmia, or we will say blood-poisoning.

At the autopsy, the uterus was found to contain a piece of placenta, perhaps one and one-half inches square, with a great deal of horribly offensive putrid fluid. There was pus in the uterine and iliac veins, abscesses in the parametrium, and in other parts, especially the lungs. I show specimens, *Fig. 4*, from the iliac vein, *a*, and from the blood pressed from a cut in the lung, *b*. You will see a very few micrococci in chains, and many of the thick bacteria of decomposition, besides the bacillus pyogenes fœtidus of Passett; these last probably accounting for the terrible odor. Staphylococci are also present in large numbers, forming the characteristic evidence of infection, appearing in clusters like bunches of grapes, staphyloi, or in larger masses like spawn of frogs or fish. They also occur alone, or in pairs, and when pairing or dividing, resemble short bacilli. As for the chains present here and in the next case, they are

* Mitth. d. *Kais. deutsch. Ges. Amtes*, 1884.

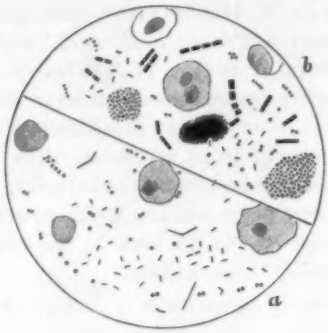

Fig. 4, 800 x.

so few in number, and show so little evidence of arrangement in pairs that I think they should be considered rather as a casual or accidental arrangement of the staphylococci, than as streptococci proper.

The last case to which I shall refer is that of a woman who had a myoma of the uterus as large as an infant's head, growing on a pedicle about one and one-half inches thick. This was removed by the vagina, by Carl Braun, and the pedicle severed by the galvanocaultic wire.

Just before the operation, while under chloroform, digital examination was made by a large number of students present, and although they all washed their hands previously, yet some of them probably did not do it thoroughly. After the operation, the uterus was well douched with bichloride, and the stump powdered with iodoform, yet it was insufficient. Some micrococci had been inoculated, where the disinfectant could not follow them, and in a few days the patient died septic. The autopsy showed pus infiltrated in the stump, and from there the infection had spread, causing abscesses in the pelvis, etc.

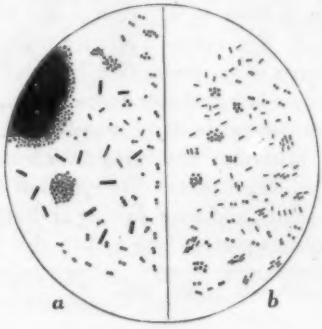

Fig 5, 800 x.

I show you a specimen of pus taken from the stump, *Fig. 5, a*, at some one-half an inch from the cut surface; it is filled with masses of micrococci, evidently staphylococci and there are *bacilli pyogenes fœtidi* in abundance, also bacilli of putrefaction, the saprophytes of Rosenbach.

I show also from this case, *b*, a preparation from a second culture, in meat-water-peptone gelatine, which shows the same organisms, the b. p. fœtidi, which grow most rapidly, being now the most abundant.

Here is also for comparison a preparation from pus, from a case of acute infectious osteomyelitis of the tibia, or necrosis, as we used to call it, showing the staphylococci, and also one, *Fig. 6*, from a second culture of the same.

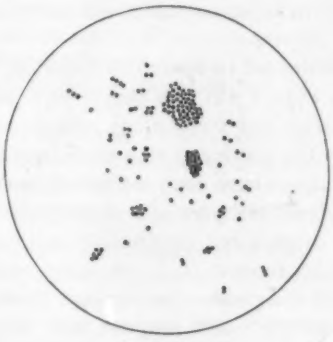

Fig. 6, 800 x.

Likewise here, *Fig. 7 and 8*, is a very thin section of a kidney, a so-called surgical kidney, showing the plugging of the tubules with

Fig. 7, 100 x.

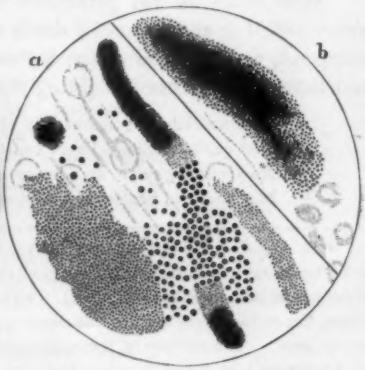

Fig. 8a, 300 x. *Fig. 8b*, 800 x.

masses of the staphylococci, and the heaping together of white cells, which is Nature's mode of fencing out the intruders by the formation of an abscess.* Although this specimen did not come from a puerpera, yet it is just as valuable, for the same condition is not infrequent in puerperal septic inflammations, and it demonstrates perfectly how these bacteria are carried about by the circulation, how they are deposited, forming so-called metastatic abscesses, and how the system tries to repel and eject the invaders.

I hope that I have not taken up too much of your time in describing these investigations. They were not made for publication, and hence the general nature and imperfectness of the above descriptions. I was working merely to satisfy myself of the real cause of pyæmia and septicæmia.

For years I had desired to study this question, for, as interne of Bellevue Hospital in 1871, I was very deeply impressed by the terrible mortality after operations and amputations, and no one has followed the progress of science in this particular with more interest than I.

I suppose most of you have read the recent article of Dr. Stephen Smith, in the *Record*, on the past and present condition of Bellevue Hospital in regard to pyæmia and suppuration, and, as one who followed that revered teacher in those days, I can testify to the vivid picture recalled by his accurate and graphic description. Those were the "good" old times when the faithful house surgeon was thought to have done well if he had no maggots in the wounds in his wards in August, and when the whole staff would poke their fingers into a compound fracture before putting it up, and carefully wash their hands *afterwards*.

How many of the profession must feel, when reflecting on the weary suffering and miserable death of their patients, both surgical and puerperal, as Faust did when applauded by the peasants for his efforts and those of his father in fighting the Pest.

> Hier sass ich oft gedankenvoll allein
> Und quälte mich mit Beten und mit Fasten.
> An Hoffnung reich, im Glauben fest,
> Mit Thränen, Seufzen, Händeringen,

---

* In *Fig. 8, a*, the artist has represented the nuclei of the leucocytes on each side of the figure rather too small; the nuclei of the epithelial cells are shown in the middle of the tubule and on either side of it; the staphylococci form plugs at each end of the tubule, but on the inner ends of the dense plugs and on their edges the staphylococci can be seen. The outlines of the cells cannot be seen with the Abbe-condenser when the diaphragm is removed in order to see the cocci.

Dacht ich das Ende jener Pest
Vom Herrn des Himmels zu erzwingen,
Der Menge Beifall tönt mir nun wie Hohn.
O könntest du in meinem Innern lesen,
Wie wenig Vater und Sohn
Solch eines Ruhmes werth gewesen!
Mein Vater war ein dunkler Ehrenmann,
Der über die Natur und ihre heilige Kreise,
In Redlichkeit jedoch auf seiner Weise
Mit grillenhafter Mühe sann * * *
Hier war die Arzenei, die Patienten starben,
Und Niemand fragte: wer genas?
So haben wir * * *
Weit schlimmer als die Pest getobt.
Ich habe selbst das Gift an Tausende gegeben,
Sie welkten hin ich muss erleben
Dass man den frechen Mörder lobt.
* * * * * * * *
Ach, glücklich, wer noch hoffen kann,
Aus diesem Meer des Irrthums aufzutauchen!
Was man nicht weiss das eben brauchte man,
Und was man weis kann man nicht brauchen.

Here, lost in thought, I've lingered oft alone,
When foolish fasts and prayers my life tormented,
Here, rich in hope and firm in faith,
With fears, wrung hands and sighs, I've striven,
The end of that far spreading death
Entreating from the Lord of Heaven!
Now like contempt the crowd's applauses seem;
Couldst thou but read, within my inmost spirit,
How little now I deem
That sire or son such praises merit!
My father's was a sombre brooding brain,
Which through the holy spheres of Nature groped and wandered,
And honestly, in his own fashion, pondered
With labor whimsical and pain:
* * * Death the patient's woes soon ended,
And none demanded: who got well?
Thus we * * * worse than the pestilence have passed.
Thousands were done to death by poison of my giving;
And I must hear, by all the living!
The shameless murderers praised at last.
* * * * * * * *
O happy he, who still renews
The hope, from error's deeps to rise forever!
That which one does not know, one needs to use
And what one knows, one uses never. —*Taylor's Trans.*

But it was the dawn of the new day. Lister was beginning his teachings, and he found willing listeners in Bellevue, until now suppuration is abolished *there* and abdominal section is performed weekly or oftener with less than seven per cent. of mortality, including all cases. Now all these questions are clearing up; antiseptic surgery is almost a fixed science; but much of the old mystery and confusion still clings to the puerperal processes. Not every one is willing to allow the analogy between operations and deliveries, and to consider every puerperal fever as an infected wound.

If my imperfect observations have made the analogy more striking in your minds, I shall be more than satisfied, but before closing I will make a very few more remarks concerning treatment, and treatment is naturally divided into prophylatic and remedial. There is no need to emphasize the superiority of the first, especially in such a grave disorder, and I presume that all are agreed that the strict rules of surgical antisepsis should be extended to mid-wifery. I have already outlined to-night the precautions on the part of the accoucher as to perfect cleanliness, which the patient has a right to expect; but to make the patient aseptic, the precautions must be taken before labor and during delivery. We must not depend on perfunctory injections, given by ill-trained nurses, after labor; on the contrary, they are unnecessary and ill-advised in cases of normal labor.

I will quote a few lines from a letter which I wrote from Berlin last spring, published in the *Boston Medical and Surgical Journal* of May 14, 1885, as to the prophylactic treatment in Berlin, which may be taken as a type of that in German and Austrian hospitals:

"After a bath and scrubbing of the body, and especially of the genitals, with soap and water, the vagina is well and thoroughly douched with a solution of corrosive sublimate in water 1:5000, and the external parts and ostium vaginæ are washed with a solution of the same, 1:1000; whenever during labor there are repeated digital examinations, the vaginal douche 1:5000 is used again.

"Toward the end the vulva is well anointed with corrosive sublimate in glycerine 1:1000. After delivery of the placenta, ergot is given, and the vagina is well washed out with the 1:5000 solution. If there has been any operation, the uterus is also washed out with the same solution. Then the vulva is washed and douched with the 1:1000 solution.

"After that there is no more vaginal douche and no need of it. External cleanliness and daily washing of the vulva with 1:1000 sublimate solution suffices.

"The most scrupulous care, however, is taken to prevent infection by the doctors or nurses during delivery. Everywhere in the wards, and in the lying-in rooms, are abundant facilities for hand washing, which is not a simple form, but a real scrubbing of hands and arms up to the elbow.

"This is done most thoroughly before and after examinations per vaginam, and in deliveries the hand is always put into the 1:1000 sublimate solution before making an examination. It is then not dried, but oiled while wet and so introduced.

"*Finis coronat opus.*"

In order that this opinion may not seem to rest too much on my own way of thinking, I will again quote from Freund, whose great work is the latest authority on the subject.

"But since the successes of lying-in institutions have clearly shown that the above affections (septic parametritides), which represent the chief contingent of the diseases grouped together as puerperal fever, can be so far prevented that a healthy puerpera does not get sick, and one casually brought in already sick after labor does not become a fire-brand to infect the many puerperæ lying in the hospital, it is well that every one to whom such an institution is entrusted should declare the principles on which he administers his responsible office, and should emphasize those controlling influences which seem to him to be the most important.

"Taking for granted the conscientious performance of the general anti-septic precautionary measures, which at present have long become part of the code of medical propriety and professional honor, I consider the chief factors of prophylaxis to be: a delivery as gentle as possible, avoiding lesions; a strictly surgical treatment of any injuries that may have occurred (careful suture); the so-called expectant management of the period of labor following the birth of a child, leaving, under normal conditions, the expulsion of the placenta to the forces of Nature; *the leaving undisturbed the internal genital apparatus of the healthy puerpera;* finally the local treatment of local, carefully diagnosticated, affections of the genitals during the puerperal period."

If, nevertheless, we have to treat a case where it appears that infection has taken place, where fever, chill, or foul lochia show the inception of trouble, here surely something more is due from the physician than to order the nurse to give a vaginal douche of slightly carbolized water.

Time is precious, a very few hours may be enough to find his patient fatally infected. He must satisfy himself by a careful examination of the condition of the parts, whether there are any secundines in the uterus, or any rents or wounds to absorb septic matter.

He must himself wash out the uterus and not merely the vagina, as often as is necessary, with simple water, or better, with two per cent. carbolized water, or 1:1000 sublimate solution. In bad cases this may have to be done very often. Wiley reports cases where even once

in two hours was not sufficient, but the patient was saved by very frequent disinfective douches.

Iodoform is also of great value in pencils in the uterus, in gauze in the vagina, or in powder on abrasions or wounds.

In short, the accoucheur must work as promptly, conscientiously and energetically as would a surgeon who found a case of compound fracture doing badly, and feel as little disposed as would a surgeon in such a case to leave to a nurse what he ought to do himself.

Time forbids any attempt to enter here into the relative merits of different antiseptics, or the question whether simple water is not enough. Each method has its partisans, and each likes the treatment that suits his ideas or pleases his vanity.

Trahit sua quemque voluptas.

I can only insist that the matter is to be decided on strictly surgical principles, such as would govern the treatment of any "pus cavity" or infected wound difficult of access and situated near vital parts.

Thus we see that if every fatal case is an infection, not every infection need be fatal. It is not only a question of seed but also of soil and of conditions, or as Hippocrates said in an aphorism, that in every case there are three factors, the disease, the patient, and the physician. If bacteria could always fatally infect, the human race would long have ceased to exist. But here, as in the case of other infections, the human organism fights against the lower forms, and is often victorious, *provided the continued source of infection is early enough removed* by cleansing the cavity of the uterus, and provided the system is supported and the constitution is not overwhelmed by an irresistible infection, or weakened by previous disease, or by hunger, grief, or shame. Under favorable circumstances, the invading bacteria are caught and fought by the wander-cells; they are fenced off in closed abscesses, and kept prisoners until they die or are evacuated.

Symptoms of sepsis are, therefore, not a signal for blank despair, but are a call to conflict, a summons to attack the materia peccans in front and rear, generally and locally, especially locally; and in nothing is the *prompt* and judicious interference of the physician more satisfactory than in these cases.

When a puerpera gets a chill and has fever, we must not think, "oh, dear; she has puerperal fever; she will die." We must think, as the surgeon does when his patient shows similar symptoms, "aha, there is pus collecting somewhere; I must find it, I must wash it out, I must drain it."

168 Newbury Street, Boston. October 29. 1885.

NINE CASES OF OVARIOTOMY.

By R. Stansbury Sutton, M. D.
[Fellow of American Gynecological Society.]

[Being the report of Ovariotomies for large Cystic Ovaries (McDowel's operation) alone, from the opening of the Terrace Bank Hospital for Women, Pittsburg, Pa., September 1, 1883, to September 1, 1885.]

BESIDES the nine McDowel operations hereafter reported, I have done in the hospital eighteen additional abdominal sections. These consisted of resections of the intestinal canal, supra-vaginal hysterectomies, Battey operations, and Hegar-Tait operations, additional ovariotomies, and abdominal section for the cure of pelvic abscess after the method of Mr. Tait.

These cases will be reported in series as time elapses.

The hospital is small and has been open twenty out of twenty-four months since its establishment; in this time twenty-seven abdominal sections have been made. It was opened for the purpose of giving a safe harbor, for this branch of my work, from infectious diseases found in general hospitals, and to escape the difficulties surrounding ovariotomy patients in homes. My statistics have been better in the hospital than they were in homes. They are encouraging. The cases have often been of a very severe character, as will be seen. Only one of nine has died. She was as good as dead when carried on a litter into the hospital. I think it would have been better to refuse to operate her. This I have never done but once. The patient was dying when I was called to see her. *I believe in selecting cases for abdominal section.* Experience is the only true guide in this matter, and as my experience is limited to less than 200 cases seen operated, I have scarcely yet reached that point when one can discriminate fully before first opening the abdomen. This, I believe, to be legitimate practice and do it unhesitatingly if in doubt. *No spray was used over the wound in any case.*

CASE I.

Mrs. J. B., aged twenty-six. Admitted October 26, 1883. Operated October 27, 1883. Multilocular cyst, right ovary, no adhesions; weight, twelve pounds; pedicle tied with carbolized silk ligature, wound closed

with silk-worm gut sutures. Time, thirty minutes. Present, Drs. Parke and Rahauser. Wound healed by first intention. Temperature never taken. Discharged November 21st, twenty-five days after operation.

CASE II.

Mrs. H. O., aged thirty-six. Admitted November 5, 1883. Operated November 8, 1883. Multilocular cyst, right ovary, no adhesions; weight, eighteen pounds; pedicle tied and wound closed as in Case 1. Time, forty minutes. Present, Drs. Robinson, Patton and Rahauser. Temperature never reached 100° F. Discharged November 30th, twenty-five days after operation. Wound healed by first intention.

CASE III.

Mrs. I. C., aged thirty. Admitted December 26, 1883. Operated December 28th. Multilocular cyst, twenty-five pounds. Extensive adhesions to abdominal walls, omentum and intestines. Pedicle treated after Keith's method, wound closed as in the other cases. Time, forty-five minutes. Present, Drs. Anderson and Emery and Rahauser. Wound healed by first intention. Highest temperature 99⅘ F. Discharged, January 19, 1884, twenty-two days after operation.

CASE IV.

Mrs. T. K., aged twenty-eight. Miserably weak. Has never menstruated. Large ovarian cysts on both sides roofed over by the broad ligaments. Tumor on the left side very vascular, looks more like a fibro cyst than an ovarian cyst. Removed the tumors from both sides and the uterus at the vaginal junction. Uterus and tumors separated, with Pauquelin's cautery, beyond the ligatures. Drainage by Köberly's tubes, 31½ ounces bloody serum in fifty-four hours. Wound healed without a drop of pus. Went home six weeks after operation. Present, Drs. McCune, Stone, Rahauser and Gill.

CASE V.

Mrs. A. S., very small woman, aged twenty-eight. Admitted April 20, 1884. Operated April 22, 1884. Measures sixty inches around the tumor. Large multilocular cyst of right ovary, left small and cystic. Removed both. Adhesions numerous, to intestines and liver; the edge of the latter was seared with the cautery for several inches. Tumor weighed forty-six pounds, sacs alone sixteen pounds. Drained for forty-eight hours with glass tube. Abdominal incision was fifteen inches long. Present, Drs. Stone, Bane and Sterritt. Wound

healed without pus. Highest temperature 101⅕ F. Went home May 6th, fifteen days after operation.

CASE VI.

Miss M. G., aged fifty-one. Admitted May 27, 1884. Operated May 29th. Multilocular cyst, extensive adhesions to abdominal walls, one cyst bursted, general peritonitis present. Pedicle very short and broad. Tied with carbolized silk ligature. Drained with long glass tube for forty-eight hours. Time, forty-five minutes Present, Drs. Langfitt, Stone and Mr. Geo. Keith, of Edinburgh, Scotland. The patient went home on June 13th, fifteen days after operation. Has married since her recovery.

CASE VII.

Miss. E. M., aged twenty-two. Admitted June 3. 1884. Operated June 5, 1884. Multilocular cyst; weight, twenty-five pounds, no adhesions. Incision only two inches long. Pedicle treated by Keith's method. Time, thirty minutes. Present, Drs. Stone, Langfitt and Mundorf, and Mr. George Keith. Patient went home on June 17th, twelve days after operation.

CASE VIII.

Mrs. I. J., aged thirty-six. Admitted, March 5, 1885. Operated March 7, 1885. Double ovariotomy. Large multilocular cysts, pedicle twisted on the right side. Extensive adhesions to omentum and abdominal wall. Peritonitis beginning. Both pedicles treated by Keith's method. Time, fifty minutes. Present, Drs. Welch and Stone. Discharged March 26th, nineteen days after operation.

CASE IX.

Miss I. D., aged thirty. Admitted July 27th. Operated July 30th. Tapped four times. Is a living skeleton; pulse, 112, temperature, 98½. Three gallons of fluids were found free in the cavity; twelve pounds of cysts were removed. Extensive adhesions to omentum and intestines existed. Chronic peritonitis was universal, and when the abdomen was emptied of its contents, the oozing of blood began and persisted from the surfaces as far as they could be seen. The subsequent drainage of blood and bloody serum was enormous. Time of operation, thirty minutes. Died of exhaustion twelve days after operation. At the post-mortem an abscess was found between the omentum and abdominal wall which were adherent. Present, Drs. McPheters, Langfitt, Stone, Davis, Winter and McCord.

Pittsburg, Pa.

THE ETHICS OF FEMALE STERILITY.

By A. Reeves Jackson, A. M., M. D.

[Professor of Gynecology in the College of Physicians and Surgeons of Chicago; Fellow of the American Gynecological Society, British Gynecological Society, Chicago Gynecological Society; Chief of the Gynecological Department West Side Free Dispensary, etc., etc.]

THE instinct of maternity is one of the purest and holiest characteristics of woman; indeed, the desire for offspring is so general an attribute of womanhood, that its absence may be properly regarded as an abnormal condition. In many instances, the only drawback to conjugal happiness consists in the lack of progeny. This natural yearning for children is thwarted, according to statistics based upon many thousands of cases, in about one marriage out of every eight.

The causes which are thought to be potent in the production of sterility are very numerous, but it is not my purpose to state them in detail. They may, however, be grouped under the following heads:

1. Incapacity for insemination.
2. Incapacity for impregnation.
3. Incapacity for ovulation.
4. Incapacity for gestation.

A few remarks upon each of these classes will be a necessary preliminary to what I shall have to say upon the ethical relations of infertility.

1. INCAPACITY FOR INSEMINATION.

Insemination may fail from default on the part of either the male or female—more frequently on the part of the former than is usually believed. Thus, in an examination of forty cases of sterile marriage in which both male and female were investigated, Kehrer* found the male to be in fault in 31·5 per cent. Noeggerath found eight in fourteen. Gross,† in a table comprising 192 cases, including the foregoing, shows that the male was deficient in one out of every six. I incline to the belief that the proportion is even greater than this.

* *Centralblatt für Gynakologie*, No. 23, 1879.

† Male sterility.

Male defect may consist in:

(*a.*) Non-secretion of semen.

(*b.*) Semen may not contain spermatozoa.

(*c.*) Spermatozoa may be scanty, motionless, or their movements may quickly cease after emission.

(*d.*) Inability to perform the sexual act.

Coitus, and, consequently, insemination, may be impossible from various conditions on the part of the female. These are of a physical character and comprise such malformations or imperfections of development, congenital or acquired, as prevent the intromission of the male organ. In such cases a woman is impotent and likewise sterile. Another form of impotency in the female arises from inability to perform completely the sexual act. This, however, does not imply either impossibility of insemination or sterility. The condition is what is usually known as frigidity, including absence of sexual desire, or orgasm, or both. Many women aver that they never experience any degree of voluptuous excitement during cohabitation, and yet they may bear children. It is conceivable that the erectile structures of the genital organs may become turgid even in this class of cases, just as is known to take place in the male, without orgasm, although in the latter it is usually accompanied by desire. It has been shown by a number of observers (Litzman, Wernich, Pallen, Beck, Mundé) that during orgasm the uterus is affected in a remarkable manner. It assumes a more perpendicular position, and sinks lower in the pelvis; the os uteri becomes softer; the labia of the uterus project and retract alternately in such a manner as to produce a "suction" effect. These manifestations are accompanied by the emission of a clear, viscid mucus.

It is probable that orgasm to the degree here depicted occurs in a comparatively small number of cases, although to a lesser extent it does so perhaps in all those who experience any measure of pleasurable sensation during sexual congress.

2. INCAPACITY FOR IMPREGNATION.

For impregnation to take place it is necessary that living spermatozoa should come in contact with a mature healthy ovule at some part of the generative passages beyond the canal of the cervix. Many conditions on the part of the female may interfere with this, even when coitus and insemination are perfectly performed. Displacements and flexions of the uterus; a narrowed condition of the os externum and os

internum, or of any portion of the cervical canal; polypus or fibroid tumors of the uterus, especially when located in the cervix; obliteration of the Fallopian tubes—the latter by preventing alike the passing inward of spermatozoa, and the transmission of the ovule from the ovary to the uterus being an absolute barrier. Practically, also, many of the conditions which result in painful or difficult intercourse produce the same result, both by limiting sexual relations and by making them ineffectual. This is notably the case in the more pronounced instances of vaginismus and hypertrophic elongation of the cervix with its accompanying pinhole os—a not infrequent anomaly, and one which is always accompanied by sterility.

3. INCAPACITY FOR OVULATION.

Many, perhaps all, of the conditions which may interfere with the development of the ovule are unknown to us. There is much reason to believe that many ovules escape from the Graffian follicles of healthy ovaries which are immature, or so diseased possibly as to be incapable of impregnation. On the other hand, women in whom both ovaries are so involved in disease as to make it seem impossible that they should be able to perform their functions at all, conceive and bear healthy children. Or, a healthy mature ovule may be formed, and be unable to escape from the ovary; or, after escaping, be unable to reach the uterine cavity. These hindrances may arise from the various inflammatory affections involving thickening of the walls of the Graffian follicles, the tissues about the ovary (peri-oöphoritis); or which result in contraction, closure, dilatation or distortion of the Fallopian tubes; adhesions of the fimbriæ to the ovary; atresia of the uterine extremities of the tubes, etc.

4. INCAPACITY FOR GESTATION.

This results from failure of the uterus to furnish a suitable nidus for the reception, attachment and subsequent development of the ovum.

The membrane which lines the corpus uteri is a highly organized structure and subject to numerous derangements. In order to perform the function of gestation, it must be in a normal condition; but intrauterine disease is of such frequent occurrence that I consider it the most common of all the causes of sterility. It does not necessarily act by preventing conception, for many women thus diseased are potentially fertile, but by rendering the mucous membrane unfitted for the fixation and growth of the ovum.

Endometritis, which is unquestionably the most frequent of all uterine diseases, doubtless acts in other ways than that mentioned; that is, it may not only interfere with gestation, but by reason of the dense, glairy discharge plugging the cervical canal, it obstructs the ingress of spermatozoa, and by its irritating properties their vitality may be destroyed.

SUBJECTIVE SYMPTOMS OF STERILITY.

In considering the various causes of barrenness, it seems proper to consider, in addition to those of a palpably physical character, certain subjective symptoms which are found so frequently as complicating conditions that they ought not to be ignored as possible etiological factors. For example, in a table compiled by Kammerer,* out of 408 cases of sterility, dysmenorrhœa was observed in sixty-nine; menorrhagia and metrorrhagia in fifty-seven, scanty menstruation in forty-one, menstruation never appeared in two, menstruation tardy in eight, vaginismus was present in two, hysteria in sixteen, nervous headache in three, intercostal neuralgia in one. While it may be difficult to understand how some of these rarer symptoms could possibly act in any manner as causes of the sterile state—as probably, indeed, they do not—it is very easy to see how others would be likely to prevent conception quite independently of their accompanying structural change. Thus, a profuse uterine discharge of any character is capable of washing away an ovule before or after impregnation. Painful menstruation is frequently—the membranous variety always—accompanied by sterility; not, of course, by reason of the pain, but because this is the result of some uterine or ovarian disease or of some impediment, organic or functional, to the free escape of blood—an impediment which we can readily understand might also, in some degree, interfere with the ingress of spermatozoa.

ETHICAL CONSIDERATIONS.

We are now prepared to discuss certain questions which involve the ethical aspects of sterility, as follows:

1. Should the treatment of the sterile condition be based upon the presumption that the fault lies with the woman?

2. Under what circumstances should sterility in the female become a subject for medical or surgical treatment?

3. Is artificial impregnation a justifiable procedure?

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* Transactions New York Academy of Medicine, Part VII, Vol. 3.

I. SHOULD THE TREATMENT OF THE STERILE CONDITION BE BASED UPON THE PRESUMPTION THAT THE FAULT LIES WITH THE WOMAN?

Perhaps the short answer to this interrogatory should be in the affirmative. For, while on the one hand, the function of the male in the processes of generation is wondrously intricate and easily disturbed; on the other, those of the female are of equally interesting complexity and much more numerous; so that the probabilities, at least, are in favor of the correctness of popular opinion, which is prompt in attributing the lack to the wife in nearly every case of unfruitful marriage. Medical opinion as reflected in medical practice does not differ from this. No evil would be likely to arise from this opinion and resulting practice, provided the former were regarded only as presumptive; but it goes farther than this, and practically concludes the question by ignoring the possible, and, as we have seen, very probable default on the part of the male. This leads frequently to useless, sometimes injurious, and occasionally aimless treatment. To avoid such impropriety every case of supposed sterility should be studied systematically. The question of its presence ought first to be considered. And in doing this, it must be remembered that infertility is not a definite thing. It may exist in different degrees, may be temporary or permanent, relative or absolute. It has been shown by Ansell's tables that in 6,000 cases, 3,159 children,—more than one-half,—were born within one year after marriage; 2,163 in the second year; 421 in the third; 137 in the fourth; and only 292 were born in the subsequent fourteen years. So that, while a majority of women conceive during the first year after marriage, and a very large number during the second year, yet in a considerable percentage of cases, conception does not occur until the third. Hence, it may be premature to conclude that a woman is sterile until after the end of three years of married life, and then only when husband and wife are in good general health, and the conditions of intercourse favorable.

The fact of sterility being assumed, the next question for determination should relate to the particular cause or causes of the default. This can only be done, if at all, by a physical examination of the most thorough character. Search should be made by inspection and touch for any malformations or diseases of the vulva, for the causes of painful or difficult intercourse, in case this symptom should be present in any degree; the parts surrounding the vagina should be carefully examined

with reference to the existence of abnormal swellings and points of tenderness. By vagino-abdominal touch may be ascertained the condition of the uterus as to size, position, sensibility and shape; also the condition of the Fallopian tubes, ovaries, and other pelvic structures. The rectal and recto-abdominal touch may greatly aid in this investigation. The source and nature of any abnormal discharges from the genital organs should be ascertained. For this the speculum is needed. By its use we may also learn the size and shape of the os uteri, the presence and appearance of erosions, ulcerations, fistulous openings, or other conditions involving changes of color or character of surface. By means of the uterine sound, we may learn the condition of the cervical canal and its orifices, as regards their patency, size and degree of sensitiveness. An examination thus carefully and thoroughly conducted should reveal any condition which might interfere with the entrance of spermatozoa into the uterine cavity. A negative result of such an investigation would eliminate the more apparent causes of sterility, and the presumption that the cause of the infertility lay with the female would be no longer justifiable—although the failure to find such cause would not by any means be conclusive.

The next step should be the investigation of the male. The inquiry should embrace the past history, and present condition as to the development of the generative organs, sexual abuse, gonorrhœa, gleet, urethral stricture, syphilis, degree of virility, and the character of the semen. A great deal of tact on the part of the physician will be sometimes required to enable him to obtain information upon these points. Most men are averse to knowing—certainly, to have others know—of any sexual deficiency on their part; and I have observed that husbands are usually quite unwilling to have their procreative ability tested when it has been brought in question.

If the genital organs appear normal in structure and virile capability, the semen should be submitted to microscopical examination. A portion of the fluid should be obtained as soon as practicable after emission and examined before it has had opportunity to be deleteriously affected by exposure to a low temperature or other influence inimical to the vitality of the spermatozoa. In this way only can be determined the presence of spermatozoa and their condition, whether, if present, they be dead and motionless, or alive and active. If spermatozoa be absent or without motion the man is sterile. If, however, they be found in the seminal fluid, display normal activity, and the man be otherwise potent, we must turn our attention again to the woman, in order to ascertain whether the vaginal or uterine secretions may be injurious

to the spermatozoa. To do this, a speculum should be introduced into the vagina within an hour or two after coitus, the woman in the meantime maintaining the recumbent posture. A portion of the semen may be drawn into a hypodermic syringe, a glass tube or pipette. The cervical mucus may be obtained in the same manner by dilating the uterus slightly with a uterine dressing forceps introduced half an inch into the cervical canal and separating the blades.

When the secretions of the uterus are healthy, the movements of spermatozoa in the cervical canal continue at least twenty-six hours, and they have been found alive at the end of seven and a-half and eight and a-half days (Sims, Perry); whereas, Levy, of Munich, who made microscopic examinations of the spermatozoa at different intervals after coitus in sixty women among whom catarrh of the uterus was present in fifty-seven, found that in these latter the number of spermatozoa found within the uterus was always small, and that they all became motionless at the end of five hours.

The most frequent cause of the untimely death of spermatozoa is the acid mucus of the vagina The degree of acidity varies greatly in different women, and in the same woman at different times. On the contrary, the slightly alkaline mucus of the interior of the uterus is favorable to the vitality of the spermatozoa, although this, too, as already stated, becomes injurious when altered by disease.

Thus far the investigation into the causation of sterility has been capable of affording some degree of definiteness of result, for it has dealt with conditions coming within reach of practicable diagnostic methods. And the result may be negative. What next? We are now justified in inferring that the barrenness is dependent upon the more hidden conditions connected with the development of the ovule, its extrusion from the Graffian follicle, and transmission to the uterus, its implantation and development in the uterus, and the progress of the spermatozoa beyond the cervical canal. These, however, are not within reach of sight or touch, and, without laparatomy, before or after death, incapable of detection. We know from post-mortem observations that certain diseases, deformities and displacements of the ovaries, Fallopian tubes, and uterus are capable of successfully interfering with ovulation, conception and gestation; and the frequency of these abnormal states may be inferred from the report of Winckel, published in the *Med. Chirurg. Rundschau*, December, 1877.

This report was based upon an examination of 150 autopsies of women who died between the ages of fifteen and fifty years. Atresia

of both tubes was found in nine cases; enlarged cervical and corporeal mucous follicles were found in twenty-two cases, in seven of which there were also adhesions about the uterus, ovaries and rectum; in two cases there were found cystic tumors in both ovaries, and in thirty cases a single ovary was cystic. In fifteen cases conception was impossible from abnormality of the tubes. The detection of these morbid states was not possible during life, and their large number tends to throw doubt upon the question as to whether, or to what extent, an existing sterility may be caused by conditions ascertainable before death.

2. UNDER WHAT CIRCUMSTANCES SHOULD STERILITY IN THE FEMALE BECOME A SUBJECT FOR MEDICAL OR SURGICAL TREATMENT?

The treatment of sterility, as every practitioner of experience is aware, is of the most unsatisfactory character. While it is not rare to find reports of cases in which medical or surgical treatment has apparently been successful, it should he remembered that these constitute a very small minority when compared with the number of those in which the result has been absolute failure. The latter are commonly not taken into account. The prognosis in any given case is always doubtful, and the greatest care should be taken in announcing it.

Very largely the failures to treat successfully the sterile condition depend upon two causes: 1. The difficulty of ascertaining the efficient cause or causes of the barrenness; and, 2. The difficulty or impossibilty of removing many of these causes when their presence is ascertained.

It is evident that any mere hap-hazard treatment—any treatment not based upon a diagnosis of the cause—can only by the merest chance be successful. Indeed, unless some cause be found, any treatment is unjustifiable. Manifestly, also, treatment of any kind would be useless when important organs are absent, imperfectly developed, or incurably deformed; or where there exists insuperable obstacles to coitus or to the transmission of semen to the uterine cavity. No treatment should be undertaken for sterility alone, which involves danger to the health or life of the woman. The desire for offspring may be strong, and the importance of an heir under some circumstances may seem very great, but these considerations ought not to influence a surgeon to imperil a life by an operation of complaisance which must, even when successfully done, be of doubtful efficacy. So, too, no treatment of the woman—certainly no treatment of a dangerous character—should be employed

unless it shall appear beyond reasonable doubt that the fault is attributable to her and not to her mate.

This question assumes a different aspect when operative or other treatment is demanded for the cure of some painful or dangerous complication, as, for example, dyspareunia or dysmenorrhœa. Here, the comfort and health of the patient are involved, and the removal of the disturbing element may incidentally remove the infertility also—the latter being, however, a secondary consideration.

The conditions, then, which would justify treatment of female sterility, are the following:

1. The detection of an evident cause and its reasonable susceptibility to removal.

2. The reasonable certainty that the cause of the barrenness lies with the woman and not with the man.

From what has already been said, it appears that the causative conditions which are most likely to be favorably influenced by treatment are:

1. Those which interfere with the proper performance of the sexual act, as, many of the malformations or diseases of the genital organs which result in painful or difficult coitus.

2. Those which offer some mechanical impediment to the access of spermatozoa to the interior of the uterus; as, an unbroken, or otherwise defective hymen, displacements and flexions of the uterus, stenosis of the vagina or some portion of the cervical canal.

3. Those which tend to destroy the vitality of the spermatozoa; as, abnormal secretions of the vagina or uterine canal.

3. IS ARTIFICIAL IMPREGNATION A JUSTIFIABLE PROCEDURE?

A good deal of rather misplaced sentimentality has been indulged in by many writers in regard to this subject. Objections have been urged against the proceeding on grounds which hardly bear the test of either scientific or ethical scrutiny. Both in Great Britain and America a number of physicians professed to be greatly shocked by the details of the methods employed by the late Marion Sims in his experiments in this direction, and yet did not hesitate to approve and adopt other means no more promising, no less indelicate, and far more dangerous, for the accomplishment of the same purpose. Continental physicians have not

been so fastidious, and Girault, De Sinety, Richard, Lesseuer, Delaporte, and other French physicians, have employed the method frequently and with an encouraging degree of success. Owing to the absence of details, the ratio of success is not known. During the year 1866, Sims made fifty-five experiments on six different women. Many of the operations were imperfectly done, or performed under unfavorable circumstances. In a single instance conception followed, but even this was inconclusive, since the experiment was preceded and followed by ordinary cohabitation. The results of the treatment in other hands have been more favorable. Girault * reports eight successes, one a twin pregnancy—the number of experiments not given.

De Sinety † says: "The successes obtained after eight or ten futile attempts are an encouragement for the repetition of the manœuvre a certain number of times."

Eustache ‡ says: "This last intervention—*ultima ratio*—is not condemned by either morality or religion; it is justified by the essentially legitimate and moral desire to have children, also by a certain number of incontestible successes,"—a sentiment with which I fully agree.

That the procedure is liable to abuse must be conceded, but this objection may be urged equally against almost every other therapeutic measure; and as concerns other objections of a purely ethical character, they may be properly left for the disposal of the parties chiefly interested—the husband and wife.

The cases which are especially adapted to this method of treatment are those in which there is some obstacle to the passage of spermatozoa from the vagina to the cavity of the uterus; for example, flexions below the os internum, and stenosis of any portion of the cervical canal. In such cases, after other rational methods of treatment have been fairly tried and have failed, artificial impregnation may be essayed under the following conditions:

1. It should be certainly known that the husband is potent and fecund, as indicated by a normal condition of the semen.

2. The menstrual function must be properly performed.

3. The genital and other pelvic organs must be normal in structure and function.

4. The consent of both husband and wife should be previously obtained.

Chicago, Ill.

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* Etude sur la Generation Artificielle dans l'espece humaine. Paris, 1869.

† Manuel de Gynecologie, 1879.

‡ Manuel Pratique des Maladies des Femmes. 1881, p. 732.

MASSACHUSETTS GENERAL HOSPITAL.—SURGICAL CASES—ANTISEPTIC TREATMENT.

SERVICES OF DRS. BIGELOW, HODGES AND BEACH.

[*Reported by William D. Hodges, M. D.*]

A REPORT on antiseptic surgery, as practised in the east wing o the Massachusetts General Hospital, was written by me, anc published in the *Boston Medical and Surgical Journal*, for July 14, 1881, with remarks by Dr. Beach, on the advantages possessed by what is known to the trade as phenyle, milk-oil, or sulpho-naphthol as an antiseptic agent over and above that of carbolic acid.

The essential points demonstrated in that report were:

1. The recognition of the poisonous properties of carbolic acid, when employed as an antiseptic agent.

2. That this liability could not be anticipated in any case; the first evidence of such a disaster being symptoms of poisoning, which might or might not be relieved by a change of the dressings.

3. The advantages claimed for the substitute of carbolic acid were: (*a.*) That it was non-poisonous, through absorption from dressings; (*b.*) That it was non-corrosive, either to instruments, to the hands of the operator employing the solution, or to the wound and vicinity where applied; and (*c.*) if compared with other antiseptic agents, would be found protective from septic processes.

Carbolic acid and other poisonous drugs, dangerous from the possibility of their absorption from surgical dressings, are almost universally employed as antiseptic agents at the present time. In view of this fact, attention is invited to the following quotation from the paper previously mentioned: "As the absorption of carbolic acid from surgical dressings cannot be anticipated in *any* given case, it becomes a serious question as to how far surgeons are justified in protecting wounds from septic processes, by subjecting patients to the possibility of a fatal result from poisoning."

A recent writer goes so far as to suggest prosecutions for malpractice, in cases where bad results follow the non-employment of antiseptic surgery. The same writer states: "The majority of germicides now in use pro-

duce injurious effects when introduced into the circulation in immoderate quantity. The danger of absorption depends, in a measure, upon the surface exposed as well as upon the length of the period of contact." The writer, on the one hand, demands a general employment of antiseptic surgery, and on the other hand, shows the possibility of the absorption of poisonous drugs when used in antiseptic dressings. As a consolation to the surgeon in cases where death is caused by the absorption of poison, he says, "the toxic influence of the drug resulting from its possible absorption should always be kept in view;" and, in referring to carbolic acid, as an antiseptic, says "It is astonishing that so few cases of poisoning have been reported as a result of its antiseptic use." It is only fair to add to the above, that when the poisonous symptoms have appeared, it may be too late to save the patient by a change of dressing or by any other treatment. Though it is astonishing that so few cases of carbolic acid poisoning from dressings have been reported, our astonishment should not allow us to make the unsafe inference that such cases have not occurred, but in keeping such a possibility "always in view," as the writer suggests, sound practice would reasonably lead one to adopt the safe agent, when it supplies a protection from septic processes equal to that of carbolic acid.

The following cases are published as a sequel to the previous report, in order to corroborate the facts then demonstrated, and to show the value of a thoroughly efficient and non-poisonous antiseptic, which can be easily obtained and employed by the surgeon.

These cases include all compound fractures and dislocations treated in the east wing of the hospital, from July, 1881, to the time of writing this paper. Patients whose injuries were of such a nature that they died within twenty-four hours after their admission, are not considered in this report.

Of the cases recorded, eighty-seven were males and thirteen females; average age 30·98 years.

The average length of time that each patient remained in the hospital was sixty six days.

INJURIES:

107 Compound fractures.
8 Compound dislocations.
13 Simple fractures.
3 Simple dislocations.

One hundred and seven compound fractures may be further classified as follows:

14 of the head.
1 " scapula.
9 " humerus.
1 " elbow.
7 " radius and ulna.
1 " radius.
6 " carpal and metacarpal bones.
7 " femur.
1 " patella.
1 " knee-joint.
45 " tibia and fibula.
7 " ankle.
7 " tarsal and metatarsal bones.

Of eight compound dislocations:

6 of the ankle.
2 " astragalus.

The thirteen simple fractures may be classified as follows:

2 of the face, multiple.
1 " humerus.
2 " radius.
2 " ribs.
1 " pelvis.
1 " patella.
3 " tibia and fibula.
1 " tarsus.

Of the simple dislocations:

2 of the humerus.
1 " metacarpal bones.

There were 791 dressings applied, of which
699 were of phenyle.
88 " carbolic acid.
2 " thymol.
2 " water.

Each patient had an average of 7·811 dressings applied, and the average length of time they were submitted to treatment was 33·67 days.

Eighty-eight patients had 699 phenyle dressings applied for 3093 days. To each patient, 7·94 dressings were applied 35·14 days. Ten patients had eighty-eight carbolic dressings applied for 283 days, being an average of 8·8 dressings applied for 28·3 days to each patient.

Number of Case.	Sex.	Age.	Occupation.	Nature of Injuries.	
1	F.	60	Housekeeper.	Colles fracture of left wrist; compound fracture of left radius and ulna, with extensive laceration.	Phen
2	M.	30	Railroad employé.	Compound fracture of left leg; simple fracture of pelvis into right acetabulum, with eversion of foot.	Phen
3	M.	22	Operative.	Compound fracture of both legs; dislocation of right shoulder; laceration of scalp.	Dislo am ny an
4	M.	13	Minor.	Compound comminuted fracture of left leg, with great displacement.	Phen
5	M.	30	Machinist.	Compound comminuted fracture of carpal bones.	Incis me am
6	M.	27	Railroad employé.	Compound comminuted fracture of humerus at the lower third.	Frag en for bo
7	M.	50	Railroad employé.	Compound comminuted fracture of left leg and left tarsal bones.	Amp tar ny
8	M.	23	Student.	Compound comminuted fracture at lower third of left leg.	Phen
9	M.	15	Minor.	Compound fracture of left femur; fracture of right leg; great laceration.	Phen
10	M.	20	Railroad employé.	Compound comminuted fracture of left foot; severe bruise of right foot.	Carb da da re
11	M.	8	Minor.	Compound fracture of left leg; dislocation of right shoulder.	Disl ny
12	M.	27	Waiter.	Compound fracture at middle of right leg. Potts fracture of left leg.	Phen
13	M.	67	Policeman.	Compound fracture of left femur.	Phen
14	M.	28	Railroad employé.	Compound fracture right radius and ulna; great laceration.	Phen
15	M.	23	Farmer.	Compound comminuted fracture of lower third of right femur.	Carb 47th
16	F.	40	Wife.	Compound comminuted fracture at lower third of right leg.	Port tib —
17	M.	25	Clerk.	Compound fracture of lower third of left leg.	Phen ch
18	F.	67	Wife.	Compound fracture of internal condyle of humerus into the elbow joint; severe bruise of head.	Phen
19	M.	28	Railroad employé	Compound comminuted fracture of radius and ulna at upper third; great laceration and hemorrhage.	Phen
20	M.	21	Carpenter.	Compound fracture of lower third of right leg.	Phen
21	F.	42	Wife.	Compound dislocation of the astragalus; fracture of the os calcis.	Astr ny
22	M.	8	Minor.	Compound fracture of the metatarsal bones.	Phen
23	M.	30	Laborer.	Compound fracture at middle of left leg.	Phen
24	M.	28	Boxmaker.	Compound fracture at lower third of left leg.	Phen
25	M.	24	Railroad employé.	Compound fracture of first phalanx of thumb.	Phen

TREATMENT.	Number of Dressings.	Day, Dressings were Omitted.	TEMPERATURE.	Day of Discharge.	REMARKS.
Phenyle; splints.	12	70	7th day, 103°.	188	
Phenyle.	5	46	4th day, 103°.	88	
Dislocation reduced; left leg amputated at middle; phenyle; right leg, phenyle and splints.	17 17	52 85	4th day, 102·5°.	133	
Phenyle.	8	99	Normal.	150	Union on 108th day.
Incisions; removal of fragments; phenyle; 14th day amputation.	6	30	2d and 16th days, 102·5°.	69	Patient was admitted three days after injury was received.
Fragments removed, fractured ends sawed; carbolic drip for 48 days; 61st day carbolic Lister.	6	37	13th day, 103°; 88th day, 103·8°.	98	83d day, large, white sloughy patches on tonsils and pharynx; patient not isolated.
Amputation of toes at second tarsal articulation; phenyle.	6	44	2d day, 102°.	70	
Phenyle.	1	25	Normal.	125	
Phenyle.	1	2	. . . . .	2	Death on second day from exhaustion.
Carbolic cotton batting; 3d day, carbolic poultice; 17th day, second and fourth toes removed; carbolic Lister.	6	25	3d day, 104·5°; 5th day, 102°; 7th day, 105°.	93	3d day, a blush-like scarlet fever, with tender inguinal glands; 5th day, rash gone; 7th day, redness and tenderness along course of vessels in left thigh.
Dislocation reduced; phenyle.	3	27	Normal.	52	
Phenyle.	3	11	Normal.	52	
Phenyle.	2	23	Normal.	150	Union 45th day; great œdema.
Phenyle.	4	19	1st day, 102·8°; 7th day, 103°.	70	
Carbolic. 47th day, thymol.	7 2	47 5	Varied between 99° and 105°.	52	6th day, knee joint laid open; 47th day, carbolic poisoning and secondary hemorrhage; femoral tied at Hunter's canal; 49th day, gangrene; 52d day, death.
Portion of the shaft of the tibia—two inches removed—phenyle.	18	108	Normal.	138	Large abscess opened on 11th day; small fragments removed till the 100th day; good union on the 88th day.
Phenyle till 40th day; then charpie and phenyle.	11	40	Normal.	46	30th and 40th day, free incisions, much pus and bleeding; 46th day, secondary hemorrhage and death.
Phenyle.	7	52	38th day, 102°.	75	38th day, diarrhœa and vomiting caused by fruit given by a visitor.
Phenyle.	12	85	Normal.	100	49th day, two large pieces of radius removed.
Phenyle.	4	45	Normal.	102	Union, 63d day.
Astragalus removed; phenyle.	22	50	Normal.	86	
Phenyle.	6	29	Normal.	75	
Phenyle	19	63	8th day, 103·5°.	176	
Phenyle.	2	20	Normal.	39	Discharged, with plaster bandage.
Phenyle.	1	2	Normal.	14	

Number of Case.	Sex.	Age.	Occupation.	Nature of Injuries.	
26	M.	27	Laborer.	Simple fracture of right ribs; compound fracture of upper third of right leg; severe contusions; vomiting.	Swathe
27	M.	43	Laborer.	Compound depressed fracture of right parietal bone; severe scalp wounds; unconscious.	Ice bag
28	M.	28	Laborer.	Compound comminuted fracture of lower third of femur; simple fracture of patella.	Carboli ing;
29	M.	25	Laborer.	Compound fracture of lower third of right leg.	Carboli
30	F.	8	Minor.	Compound fracture at middle of right leg.	Phenyl
31	M.	35	Groom.	Compound dislocation of right ankle; compound comminuted fracture of right tarsus.	Disloc ment
32	M.	28	Laborer.	Compound fracture at middle of right leg.	Cotton
33	M.	26	Stonecutter.	Compound comminuted fracture at left knee joint; great laceration; face and eyes filled with gunpowder; severe bruise of left arm; much prostration.	Atropi stim
34	M.	21	Laborer.	Compound fracture and dislocation of right ankle	Phenyl
35	M.	40	Laborer.	Compound comminuted fracture of frontal bone; severe laceration of scalp; unconscious.	Disloc ment
36	M.	41	Laborer.	Compound fracture of left arm; compound comminuted fracture of left hand; bruises of right thigh; face and eyes filled with gunpowder.	Amput phen fract
37	F.	30	Mill operative.	Compound fracture of right leg.	Pheny
38	M.	41	Laborer.	Compound fracture at ankle joint; incised wound; with depression in frontal region.	Pheny
39		46	Laborer.	Compound fracture at lower third of humerus.	Pheny
40	M.	30	Laborer.	Compound fracture at middle of right leg.	Pheny
41	M.	26	Laborer.	Compound fracture of right ankle, with extensive laceration of foot.	Pheny
42	M.	39	Teamster.	Compound fracture of upper third of leg.	Pheny
43	M.	34	Laborer.	Compound fracture of skull in the course of the sagittal suture; comatose.	Fragm and
44	M.	25	Laborer.	Compound fracture at middle of right leg.	Pheny
45	M.	31	Painter.	Compound fracture at lower third of left leg.	Pheny
46	M.	70	Railroad employé.	Compound comminuted fracture of malar bone; extensive laceration of face.	Fragm and
47	M.	24	Laborer.	Compound comminuted fracture of fore-arm and fingers.	Ampu phe
48	M.	24	Laborer.	Compound fracture and dislocation of right astragalus.	Remo nyle
49	M.	42	Sailor.	Compound comminuted fracture of lower third of left leg.	Pheny
50	M.	17	Messenger.	Compound fracture of jaw and superior maxillæ; simple fracture of ribs; laceration of tongue and muscles of neck.	Fragm nyle per

	Treatment.	Number of Dressings.	Day Dressings were Omitted.	Temperature.	Day of Discharge.	Remarks.
er	Swathe for ribs; phenyle.	1	12	Normal.	43	Plaster bandage on 40th day.
re	Ice bags; drainage.	0	0	2d day, 99°; P., 58: 4th day, 104°; P., 80; 7th day, 105°; P., 158.	7	7th day, death from meningitis.
r;	Carbolic oil and cotton batting; 17th day boracic oint.	6	17	Normal.	198	
	Carbolic oil and gauze.	3	44	Normal.	92	
	Phenyle.	16	28	Normal.	72	
ed	Dislocation reduced; fragments removed; phenyle.	5	10	Normal.	10	5th and 7th days, secondary hemorrhage: 8th day, amputation at lower third of leg; 10th day, death from exhaustion.
	Cotton batting and phenyle.	4	42	Varied from 98° to 101°.	70	56th to 60th days, had erysipelas.
at re	Atropia for eyes; phenyle; stimulants.	1	2		2	Death from shock on 2d day.
	Phenyle.	6	20	2d day, 103°.	47	
re	Dislocation reduced; fragments removed; phenyle.	18	18	2d day, 100·8°.	25	Delirium till 10th day.
ac- es	Amputation at wrist joint; phenyle to amputation and fracture; atropia for eyes.	8	21	4th day, 101°.	35	Union on 26th day.
	Phenyle.	4	61	Normal.	101	Union on 95th day.
de-	Phenyle; ice to head.	2	4	2d day, 101°; 3d day, 104°; 4th day, 105·5.	4	3d day, delirium tremens; 4th day, death.
	Phenyle.	3	11	Normal.	59	
	Phenyle.	2	13	Normal.	46	
of	Phenyle.	5	27	Normal.	224	27th day, first and second toes removed; extensive sloughing, sponge grafts.
	Phenyle.	3	32	Normal.	86	
rc;	Fragments removed; cotton and phenyle.	1	3	3d day, 106°.	3	Death on 3d day from meningitis.
	Phenyle.	9	81	Normal.	114	
	Phenyle.	9	56	Normal.	82	
ive	Fragments removed; cotton and phenyle	10	20	Normal.	34	
	Amputation of third finger; phenyle.	11	43	Normal.	50	
	Removal of fragments; phenyle.	22	102	Normal.	379	Large amount of necrosed bone removed.
	Phenyle.	7	42	Normal.	93	
rac-	Fragments removed; phenyle; swathe to ribs; fed per rectum.	4	4	3d day, 102°.	4	Convulsions and death from meningitis

Number of Case.	Sex.	Age.	Occupation.	Nature of Injuries.	
51	M.	37	Agent.	Compound fracture of left femur; dislocation of right metacarpal bones; contusion of right hip joint; scalp wounds.	Phen duc
52	M.	50	Musician.	One week after injury entered hospital with a compound comminuted fracture at middle of right leg.	Poult 55t
53	M.	38	Tailor.	Compound comminuted fracture at lower third of right leg.	Phen
54	M.	40	Lawyer.	Compound fracture of frontal bone.	Phen
55	M.	62	Carpenter.	Compound comminuted fracture of right femur; great laceration.	Phen
56	M.	18	Teamster.	Compound dislocation of right ankle; fracture of internal malcolus of left leg.	Tend loc
57	F.	40	Wife.	Compound comminuted fracture at lower third of right leg.	Phen
58	F.	15	Minor.	Compound comminuted fracture of nasal bones; rupture of cornea of left eye; great laceration of face.	Cold day
59	M.	35	Laborer.	Compound comminuted fracture at middle of leg.	Phen
60	F.	60	Domestic.	Compound comminuted fracture of left radius and ulna.	Fract wi
61	M.	22	Sailor.	Compound comminuted fracture at lower third of left leg.	Phen
62	M.	29	Laborer.	Compound dislocation and fracture of right ankle.	Dislo ny
63	M.	4	Minor.	Compound fracture at middle of humerus; great laceration.	Phen
64	M.	31	Machinist.	Compound fracture of right radius and ulna; great laceration; collapse on admission.	6th ny
65	M.	33	Hostler.	Compound comminuted fracture of left leg.	Frag ny
66	M.	11	Minor.	Compound comminuted fracture of right parietal bone.	Phen
67	M.	41	Butcher.	Compound comminuted fracture of right leg.	Phen
68	M.	23	Stonecutter.	Compound comminuted fracture at middle of right leg.	Phen
69	M	27	Stonecutter.	Compound comminuted fracture of upper third of right leg; severe convulsions; complete collapse.	Phen
70	M.	28	Laborer.	Compound comminuted fracture of jaw; deep, lacerated wound of neck.	Palli re
71	F.	67	Laundress.	Compound comminuted fracture at upper third of left humerus; compound fracture at upper third of left leg; laceration of entire surface of right arm; collapse.	Palli
72	M.	35	Trustee.	Compound fracture of frontal and maxillary bones, also of jaw at symphysis; simple fracture of nasal bones, and right ramus of jaw.	Rub ny
73	M.	54	Lighthouse keeper.	Compound fracture at middle of right leg; simple fracture at middle of left leg.	Phe
74	M.	8	Minor.	Compound oblique fracture of left leg.	Phe
75	M.	20	Railroad employé.	Compound comminuted fracture of patella; much effusion into knee joint.	Ice

TREATMENT.	Number of Dressings.	Day, Dressings were Omitted.	TEMPERATURE.	Day of Discharge.	REMARKS.
Phenyle; dislocation reduced.	6	30	Normal.	86	Union on 50th day.
Poultice; 36th day, myrrh; 55th day, phenyle.	10	115	Varied from 98° to 103°.	114	
Phenyle.	2	26	Normal.	65	
Phenyle.	14	14	7th day, 103°.	16	7th to 10th days had erysipelas.
Phenyle.	3	3	3d day, 101°.	3	Death on 3d day from shock.
Tendo-Achillis divided; dislocation reduced; phenyle.	14	60	6th day, 103·5°.	73	6th day, violent delirium.
Phenyle.	3	21	Normal.	40	
Cold compress to eye; 17th day, removal of eye.	0	0	Normal.	21	
Phenyle.	2	17	Normal.	25	Discharged with a plaster bandage.
Fractured ends sawed off and wired; phenyle.	7	52	Normal.	62	
Phenyle.	1	15	Normal.	28	Plaster bandage on 15th day.
Dislocation reduced; phenyle.	7	50	Normal.	70	
Phenyle.	11	30	Normal.	54	7th day, operated for phymosis.
6th day radius wired; phenyle.	14	28	Normal.	64	
Fragments removed; phenyle.	13	15	Normal.	15	Removed against advice.
Phenyle.	7	20	Normal.	21	
Phenyle.	3	28	Normal.	80	
Phenyle.	5	22	Normal.	71	
Phenyle.	2	3	. . . . .	3	Had lately recovered from typhoid fever; death from exhaustion.
Palliative treatment; fed per rectum; phenyle.	3	8	8th day, 103°.	8	Death from collapse.
Palliative; phenyle.	1	2	2d day, 103·8°.	2	Collapse and death from shock.
Rubber plate for jaw; phenyle.	35	35	Normal.	70	61st day, several pieces of necrosed bone removed.
Phenyle; splints.	3	21	Normal.	86	Union in right leg, 60th day; union in left leg, 51st day.
Phenyle.	3	38	Normal.	79	
Ice bags; phenyle.	10	60	13th day, 104°.	90	

Number of Case.	Sex.	Age.	Occupation.	Nature of Injuries.	
51	M.	37	Agent.	Compound fracture of left femur; dislocation of right metacarpal bones; contusion of right hip joint; scalp wounds.	Phen duc
52	M.	50	Musician.	One week after injury entered hospital with a compound comminuted fracture at middle of right leg.	Poult 55t
53	M.	38	Tailor.	Compound comminuted fracture at lower third of right leg.	Phen
54	M.	40	Lawyer.	Compound fracture of frontal bone.	Phen
55	M.	62	Carpenter.	Compound comminuted fracture of right femur; great laceration.	Phen
56	M.	18	Teamster.	Compound dislocation of right ankle; fracture of internal malcolus of left leg.	Tend loc
57	F.	40	Wife.	Compound comminuted fracture at lower third of right leg.	Phen
58	F.	15	Minor.	Compound comminuted fracture of nasal bones; rupture of cornea of left eye; great laceration of face.	Cold day
59	M.	35	Laborer.	Compound comminuted fracture at middle of leg.	Phen
60	F.	60	Domestic.	Compound comminuted fracture of left radius and ulna.	Fract wi
61	M.	22	Sailor.	Compound comminuted fracture at lower third of left leg.	Phen
62	M.	29	Laborer.	Compound dislocation and fracture of right ankle.	Dislo ny
63	M.	4	Minor.	Compound fracture at middle of humerus; great laceration.	Phen
64	M.	31	Machinist.	Compound fracture of right radius and ulna; great laceration; collapse on admission.	6th ny
65	M.	33	Hostler.	Compound comminuted fracture of left leg.	Frag ny
66	M.	11	Minor.	Compound comminuted fracture of right parietal bone.	Phen
67	M.	41	Butcher.	Compound comminuted fracture of right leg.	Phen
68	M.	23	Stonecutter.	Compound comminuted fracture at middle of right leg.	Phen
69	M	27	Stonecutter.	Compound comminuted fracture of upper third of right leg; severe convulsions; complete collapse.	Phen
70	M.	28	Laborer.	Compound comminuted fracture of jaw; deep, lacerated wound of neck.	Palli re
71	F.	67	Laundress.	Compound comminuted fracture at upper third of left humerus; compound fracture at upper third of left leg; laceration of entire surface of right arm; collapse.	Palli
72	M.	35	Trustee.	Compound fracture of frontal and maxillary bones, also of jaw at symphysis; simple fracture of nasal bones, and right ramus of jaw.	Rub ny
73	M.	54	Lighthouse keeper.	Compound fracture at middle of right leg; simple fracture at middle of left leg.	Phe
74	M.	8	Minor.	Compound oblique fracture of left leg.	Phe
75	M.	20	Railroad employé.	Compound comminuted fracture of patella; much effusion into knee joint.	Ice

TREATMENT.	Number of Dressings.	Day, Dressings were Omitted.	TEMPERATURE.	Day of Discharge.	REMARKS.
Phenyle; dislocation reduced.	6	30	Normal.	86	Union on 50th day.
Poultice; 36th day, myrrh; 55th day, phenyle.	10	105	Varied from 98° to 102°.	114	
Phenyle.	2	26	Normal.	65	
Phenyle.	14	14	7th day, 103°.	16	7th to 10th days had erysipelas.
Phenyle.	3	3	3d day, 101°.	3	Death on 3d day from shock.
Tendo-Achillis divided; dislocation reduced; phenyle.	14	60	6th day, 103·5°.	73	6th day, violent delirium.
Phenyle.	3	21	Normal.	40	
Cold compress to eye; 17th day, removal of eye.	0.	0	Normal.	21	
Phenyle.	2	17	Normal.	25	Discharged with a plaster bandage.
Fractured ends sawed off and wired; phenyle.	7	52	Normal.	62	
Phenyle.	1	15	Normal.	28	Plaster bandage on 15th day.
Dislocation reduced; phenyle.	7	50	Normal.	70	
Phenyle.	11	30	Normal.	54	7th day, operated for phymosis.
6th day radius wired; phenyle.	14	28	Normal.	64	
Fragments removed; phenyle.	13	15	Normal.	15	Removed against advice.
Phenyle.	7	20	Normal.	21	
Phenyle.	3	28	Normal.	80	
Phenyle.	5	22	Normal.	71	
Phenyle.	2	3	. . . . .	3	Had lately recovered from typhoid fever; death from exhaustion.
Palliative treatment; fed per rectum; phenyle.	3	8	8th day, 103°.	8	Death from collapse.
Palliative; phenyle.	1	2	2d day, 103·8°.	2	Collapse and death from shock.
Rubber plate for jaw; phenyle.	35	35	Normal.	70	61st day, several pieces of necrosed bone removed.
Phenyle; splints.	3	21	Normal.	86	Union in right leg, 60th day; union in left leg, 51st day.
Phenyle.	3	38	Normal.	79	
Ice bags; phenyle.	10	60	13th day, 104°.	90	

Number of Case.	Sex.	Age.	Occupation.	Nature of Injuries.	
76	M.	36	Sailor.	Compound fracture and dislocation of left ankle.	Phenyle pheny
77	M.	39	Carpenter.	Compound fracture at middle of left leg.	Phenyle
78	M.	23	Carpenter.	Compound fracture of elbow joint: excision.	Phenyle
79	F.	15	Minor.	Compound fracture lower third of right leg.	Phenyle
80	M.	18	Laborer.	Compound fracture at middle of right leg.	Phenyle
81	M.	14	Minor.	Compound fracture of metacarpal bones.	Phenyle
82	M.	22	Laborer.	Compound fracture at middle of left leg.	Phenyle
83	M.	27	Railroad employé.	Compound comminuted depressed fracture of frontal bone.	Elevatio fragm
84	M.	25	Laborer.	Compound Colles fracture of left wrist; simple fracture of three ribs on left side.	Fractur swath
85	M.	26	Carpenter.	Compound fracture of left ankle.	Phenyle
86	F.	10	Minor.	Compound fracture at lower third of left femur.	Phenyle
87	M.	40	Laborer.	Compound comminuted fracture at middle of left leg.	Phenyle
88	M.	49	Glassblower.	Compound fracture and dislocation of left ankle.	Phenyle
89	M.	50	Farmer.	Entered hospital three days after injury, with compound comminuted fracture at middle of left leg.	Carboli
90	M.	14	Minor.	Entered hospital two days after injury, with a compound comminuted fracture at upper third of humerus.	Phenyle
91	M.	39	Railroad employé.	Compound comminuted fracture of metacarpal bones.	Phenyle
92	M.	54	Farmer.	Compound fracture of the right scapula.	Phenyle
93	M.	22	Railroad employé.	Compound comminuted racture at lower third of left leg; Colles fracture of right arm; laceration of scalp; punctured wound of illium.	Phenyle Phenyle
94	M.	44	Laborer.	Compound comminuted fracture at middle of left leg.	Phenyle
95	M.	28	Teamster.	Compound fracture at upper third of humerus; extensive laceration of face.	Phenyle
96	M.	27	Railroad employé.	Compound fracture of right radius and ulna; simple fracture at upper third of right humerus.	Carboli
97	M.	55	Laborer.	Compound comminuted fracture at upper third of left leg.	Phenyle
98	M.	18	Laborer.	Compound fracture of tarsal and metatarsal bones.	Carboli
99	M.	32	Printer.	Compound fracture of metatarsal bones.	Carboli
100	F.	9	Minor.	Compound fracture at middle of right humerus.	Carboli

Treatment.	Number of Dressings.	Day, Dressings were Omitted.	Temperature.	Day of Discharge.	Remarks.
Phenyle poultice; 7d day phenyle Lister.	20	140	Varied from 98° to 103°.	179	Secondary hemorrhage on 111th day.
Phenyle.	6	33	Normal.	43	
Phenyle.	12	46	Normal.	55	
Phenyle.	13	48	Normal.	102	
Phenyle.	5	25	Varied from 98° to 102°.	55	
Phenyle.	1	3	Normal.	19	
Phenyle.	2	7	Normal.	46	
Elevation and removal of fragments; phenyle.	30	30	4th day, 101·8°.	47	43d day, about ward and garden; pulsation of brain seen in opening.
Fracture reduced; phenyle; swathe to ribs.	10	50	Normal.	57	
Phenyle.	13	19	1st day, 104°.	67	
Phenyle.	3	30	13th day, 103°.	68	
Phenyle.	3	5	5th day, 105°.	5	Death on 5th day from delirium tremens.
Phenyle.	3	12	Normal.	23	
Carbolic.	11	26	14th day, 105°.	28	14th day, counter openings; 20th day, orchitis; 22d day, brawny, swelling of left arm; 23d day, delirium and involuntary dejections; 26th day, death from pyæmia.
Phenyle.	19	80	10th day, 104°.	86	
Phenyle.	4	28	Normal.	28	
Phenyle; Velpeau bandage.	1	3	Normal.	10	
Phenyle. Phenyle.	15 2	42 3	10th day, 103°.	167	10th day, counter opening; 80th day, large amount of necrosed bone removed.
Phenyle.	11	81	Normal.	92	
Phenyle.	2	10	Normal.	20	
Carbolic.	8	30	Normal.	39	
Phenyle.	8	14	. . . . .	14	
Carbolic, with Iodoform gauze	5	21	Normal.	21	
Carbolic, with Iodoform gauze	9	29	Normal.	29	
Carbolic.	5	29	Normal.	32	

Poisoning occurred but once, and then from the use of carbolic acid. Thymol was substituted, but death followed five days after the poisonous effects developed themselves.

Death resulted in fifteen cases from the following causes:

Delirium tremens,	2
Meningitis,	3
Exhaustion,	3
Shock,	3
Collapse,	1
Secondary hemorrhage,	1
Pyæmia,	1
Carbolic poisoning,	1

There were but two cases of erysipelas, one lasting four days, the other three days.

The following abstract from the article written four years ago, explains the manner in which the phenyle dressings were applied:

"In using the spray, the solution is made sufficiently strong by mixing one part of phenyle with 250 of water; but for instruments, hands and irrigation, one part to fifty, or from that to one hundred.

"In excisions of the breast and operations of a similar nature, the spray has been repeatedly omitted, the wound being thoroughly washed out before applying the dressing.

"The manner in which the phenyle dressings were applied commends itself for its simplicity, to the surgeon who does not find it convenient to procure the regulation gauze, or cheese cloth.

"The protective is applied as in the regular Lister dressing, simply to prevent the cotton from sticking to the edge of the wound. Soak a handful of ordinary cotton waste, cut into bits about an inch long, in a one to twenty solution of phenyle; squeeze dry, and apply it closely to the end of the drainage tubes. Afterwards, place four layers of cotton batting, previously *well* soaked in the one to fifty solution and squeezed dry, over the wound, in the same way as the gauze is usually employed; over all, a layer of dry cotton wadding, in order that the bandage which holds the dressing in place, need not compress the wound to such an extent as to make the patient uncomfortable.

"The cotton wadding should overlap the cotton waste at least six inches in *every* direction, for thorough protection. The cotton waste is an important part of the dressing, as it takes the place of the gauze in permitting the discharges to flow from a wound instead of accumulating and burrowing beneath the edges."

ON THE THERAPEUTIC EFFECTS OF AVENA.

By William F. Waugh, M. D.

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SOME years ago my attention was attracted to the preparation of Avena Sativa, which had been placed in the hands of the profession as a remedial agent. The claims of its manufacturers and the testimonials of physicians who had made use of it, appeared to justify me in making some inquiry into its merits.

The result of my first experiments convinced me that there was some remedial power in the preparation. I have accordingly subjected it to an extended trial; the results of which I have embodied in the present article.

It may be well to state at the outset that this preparation is obtained by evaporating an alcoholic extract of the seed. This being the case, we need not expect from an article so generally used as food, any very marked effects on the circulation or on the other vital functions, such as we obtain from the poisonous drugs. Nor can we compare it with opium because the seeds of the poppy are used as a wholesome and innocuous food. Had the manufacturers of Avena given us an extract of the root, we need not have been surprised if such a preparation possessed lethal properties. Hence, an investigation of the true value of such a drug is attended with much difficulty; and requires repeated trials under varying conditions before one can speak with certainty concerning it.

When a small dose, ten to thirty drops, is given to a healthy man in ordinary condition, little effect is produced. If the taker be fatigued, the same sensation of rest is produced which follows the use of coca or tea.

If the dose be given in hot water, the effect is more marked and more quickly manifested. If too large a dose be taken, it is followed by pain at the base of the brain. This is felt too frequently to be considered an accidental sequence. On the digestive organs I have never

observed the slightest effect. Nor have I ever observed any tonic action in cases of anæmia or debility from any other cause. Its effects have always been manifest upon the nervous system alone: as a nervous stimulant. In two cases characterized by persistent pain at the base of the brain, in nervous exhaustion from overwork while under great mental despondency, the pain was increased by Avena, even in five-drop doses.

It is one of the so-called "nervines," a class of drugs whose action is but little understood; whose limits are by no means sharply defined; but which fill no inconsequent place in the materia medica. To obtain the best results from their use, so much depends upon coöperating influences, time, circumfusa, mental state, physical condition, "faith" in doctor and drug, etc., that it is difficult to estimate rightly the influence exerted by each.

Administer a suitable dose of opium, and you may be reasonably certain that so many hours of sleep will ensue. Darken the room, ensure its quietude, make the patient comfortable in body and easy in mind, and administer a dose of valerian or Avena, with the assurance that sleep will follow. *Probably* it will.

The Vienna school set the fashion of therapeutical skepticism. Following its lead, many physicians reject every result which cannot be weighed or measured; accepting nothing but what can be established with mathematical certainty. But beyond these limits are hundreds of remedial agents, which are deservedly trusted by many, although their utility cannot be measured by rule and plummet.

In proving such remedies, it is essential that the investigator be not carried away by enthusiasm; that he should carefully distinguish between the post hoc and the propter hoc; and that he should have a definite idea of what favorable changes can be wrought in the disease treated. Take, for instance, the affection for which Avena was originally recommended—paralysis. In the various affections of which paralysis is a symptom, probably no two cases can be exactly compared. Two men are stricken with apoplexy, with effusion of blood into the cerebral tissues. How do we know whether the same amount of damage is done in both cases; in the same location; if the clots are of the same consistence; if the surrounding hyperæmia be as intense; the œdema as extensive; the activity of the absorbents alike? It follows, that if one case recovers more quickly than another, it is no proof whatever of the superiority of the methods employed in treatment. The paucity of ideas in the professional mind on this subject is singular. Absorbents

to carry off the clot, faradization to prevent wasting of the muscles, and galvanism or strychnia to arouse the nerves to a sense of their duties, seems to comprise the stock.

Without being able to demonstrate what the precise effect of Avena is, I am sure it has proved beneficial in various cases of paralysis.

An employé of the Custom House, aged 60, had a "stroke" one morning before rising, followed by nearly complete left hemiplegia. Part of the disability passed away in a few days, but no further improvement ensued during the following month. He then commenced the use of Avena. At the end of the first week he reported "no benefit." In another week he felt that the medicine was exerting some beneficial action, and finally became so firmly convinced of this that he insisted on taking it for six months, by which time all traces of the paresis had disappeared.

In every case of paresis which I have treated with Avena, the result has been similar—at first the patients found no result, but later became firmly convinced of the utility of the drug.

In diphtheritic and syphilitic palsies I have never been able to satisfy myself that any good resulted from Avena. Nor have the persons treated felt the beneficial effects as in other varieties of paralysis.

From a very interesting letter from Dr. Albert Dunlap, Kent, Union County, Ia., I quote the following:

"I could cite a number of cases of paralysis following diphtheria; yet as such cases might be credited to spontaneous recovery, and no good influence acknowledged for the remedy, I will give one case from my note-book where no such objection can be advanced; and the remedy must receive due and proper credit. Six years ago a man came to me complaining of a local sensory paralysis of the skin of the thigh, over a spot the size of the hand. This had existed for over 15 years, and was attributed by him to a long ride in a violent snow storm. It had gradually become worse during the preceding five years. At the time he consulted me there was total paralysis of sensation in the spot. I placed him on Avena Sativa; thirty drop doses of Keith's concentrated tincture in cold water, four times a day; without any other medication. In two weeks, sensation was entirely restored."

Where insomnia is the result of nervous debility, a dose of Avena in hot water will frequently be followed by sound and refreshing sleep.

So, also in chlorotic women, when the sleep is disturbed, and broken by dreams, from which they awake in the morning unrefreshed, Avena will be found an efficient and harmless remedy.

In fact, a number of observations have proved to me that in all the minor nervous difficulties of anæmic women, this drug is of great value.

The careful physician will beware of prescribing opiates in such cases; and Avena is certainly more agreeable than camphor, valerian or

assafœtida. The effect in these cases is not in the alcohol, the dose being too small ; ten drops frequently sufficing to produce the desired effect.

Dr. Dunlap also recommends it in cholera infantum; given frequently, in full doses. Here, however, the effect may be in great part attributed to the alcohol; and while the suggestion is worth a trial, I do not feel sure the Avena will be shown to have any specific effect except on the nervous condition.

In the anomalous nervous disorders accompanying uterine disease, a dose of Avena will frequently be found effectual in quieting the irritable nerves when we do not wish to resort to more powerful medicaments.

Much of the suffering in life is caused by minor ailments, functional affections, which are too frequently dismissed by the physician without receiving much attention. More than any other class these sufferers resort to quacks, who save them from incalculable danger by their opportune discovery of some threatened ailment which is averted by their skill. Another and more dangerous species of quack is the one who does the "wonders" for his patient, by sewing up some microscopic laceration of the cervix uteri, which, indeed, may not have existed at all. By attending to the minor ailments we keep our patients out of the hands of these unprincipled rascals. But the physician who overtreats these cases, he whose armamentarium for nervous complaints consists solely of opium, chloral and the bromides, is like one who might try to drive a tack with a sledge-hammer.

In the treatment of the opium habit, Avena has attracted some attention. A somewhat enthusiastic claim put forth in its behalf by one writer was met by a total denial of its efficacy by another. As usual, the truth will be found between the two extremes. It is much to be regretted that those whose writings fill our journals should not take to heart the old German proverb, "When you empty the bath you need not spill the baby."

In treating cases of the opium habit at their homes, the method of gradual reduction of the opiate taken is the only one practicable. Total abstinence or rapid reduction is out of the question, except at a hospital or retreat. Granting that the gradual reduction may be accomplished without the aid of such drugs as Avena, it does not follow that the object cannot be attained more easily and pleasantly with their help. I submit the proposition that no one knows better than the opium-taker how hard it is to stop using that drug, and no one is better qualified to

judge whether anything helps him to bear the deprivation. That Avena does help them, numbers of opium eaters have testified. I have perused a number of letters from fairly competent witnesses, who speak of the benefit they derived from the drug, by means of which they were enabled to overcome the habit, although not without a severe trial. Such testimony cannot be set aside as valueless because the attending physician has not made a chemical examination of the urine to verify his patients' statements. The fact that patients once cured, but who have relapsed, return to the physician and ask for the same medicine which they had used before, is proof enough for any candid mind that they had found relief from its use.

In conclusion, we may sum up the question of the therapeutical effects of Avena, by saying that in it we have a nervous stimulant, of use in a large range of minor nervous derangements, particularly in insomnia; that it is especially valuable in the treatment of paresis, though the modus operandi of the drug is not known, and that it is of undoubted value in the home treatment of the opium habit.

1725 Arch Street, Philadelphia.

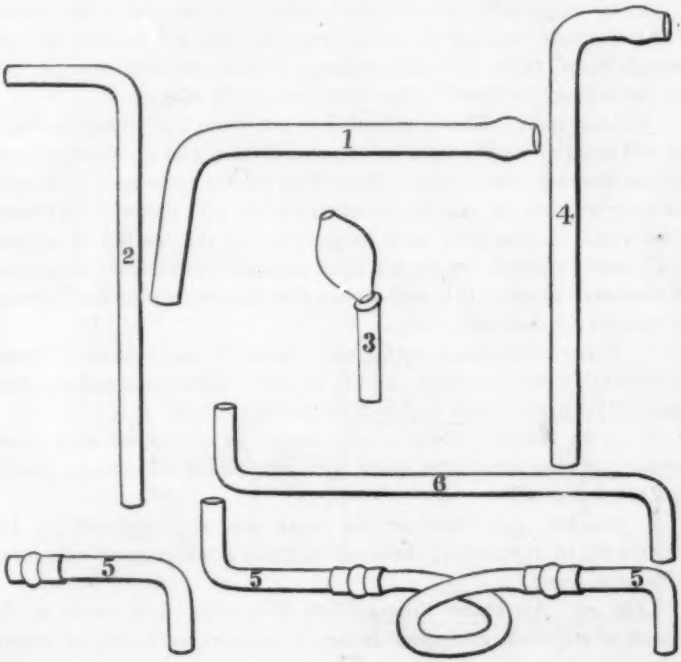
ON THE ACTIVE AND PASSIVE INHALATION OF THE NASCENT CHLORIDE OF AMMONIUM IN ACUTE DISEASES OF THE AIR PASSAGES, WITH EMPHASIS ON PASSIVE INHALATION IN BABYHOOD.

(SECOND PAPER.)

By Ephraim Cutter, M. D.

NATURE works with simple means. Hence in the former paper on this subject, simplicity was sought. Some thought this was a mistaken idea of mine and suggested bringing out more details and describing some additional features intended to make the apparatus more effective, especially in diphtheria, and to do all the work that an

Fig. 1.



Inhaler can do. One person cannot cover the whole field of usefulness on any subject. Hence the suggestions of Dr. James Craig, of Jersey City, were welcomed, tested, found feasible and are hereby acknowledged. If other practitioners would give hints, the number of practically useful appliances in medicine would be advantageously increased. This statement explains the present effort.

(*A.*) Active inhaling tubes.

1. Throat tube.

2. Air supply tube reaching near bottom of reservoir.

3. Nasal tube.

(*B.*) Passive inhaling tubes.

4. Supply tube; can attach hose or bulb.

5, 5, 5. Directing tubes used singly or connected together with india-rubber hose.

6. Directing tube for diphtheria.

First notice the tubes. (See *Fig. 1.*)

1, is the inhaling mouth tube with a bulb in place of flat end for attaching a hose.

2, *air supply tube for active inhalation.* It reaches to the bottom of the reservoir through liquid contents, so that air inhaled will pass through liquid. No. 2, is also used as a *straight directing tube for passive inhalation*, by inserting the short arm in the stopper.

3, nasal tube. This is intended to put in one nostril and the inhalant will impinge on the nasal mucous membranes and be speedily taken into the systemic circulation. More than twenty years ago, I observed and reported that the mucous membrane of my own posterior turbinated bones would become livid and congested like the wattles of a turkey cock's head and neck, during the nasal inhalation of pleasant or unpleasant aromas or vapors. It is well-known that anæsthetics inhaled through the nostrils act most effectively.

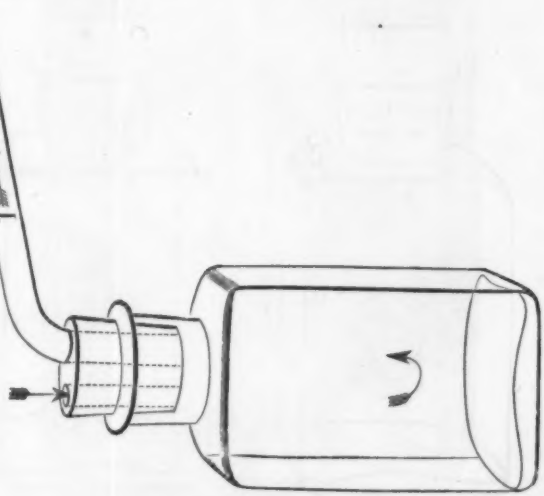
4, Passive Inhalation supply tube; passes to the bottom of reservoir through liquid contents; a bulb of india-rubber attached to a hose is connected to the outer end and air forced through.

5, 5, 5, directing tubes; used singly or connected with hose; they are put into the smaller opening in the stopper and can be used in any direction at will.

6, directing tube bent at two right angles. Suggested by Dr. Craig for use in diphtheria; designed to avoid a too personal contact of patient and nurse.

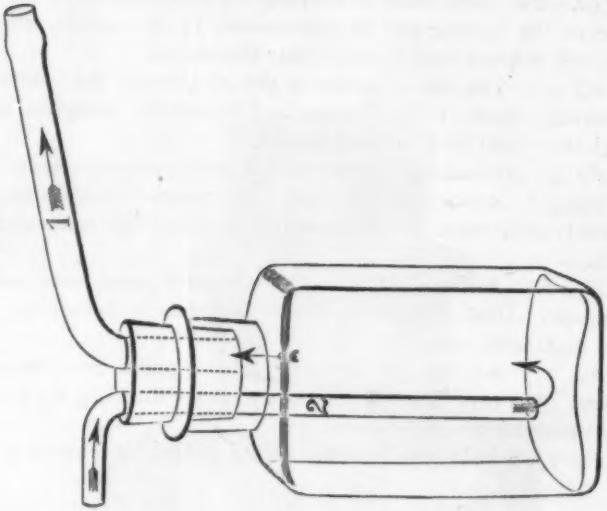
(*Fig. 2.*) Air enters through hole in stopper downwards to the contents of reservoir, and upwards through inhaling tube into the throat.

Fig. 2.



ACTIVE THROAT INHALATION.

Fig. 3.



ACTIVE THROAT INHALATION.

Test.—Put a little water in reservoir and inhale strongly; the water just below the opening will be counter-sunk by the current, which, of course, will displace volatile and cloudy substances.

(*Fig. 3.*) The tube *2*, conducts the air through the contents of the reservoir, nearly to the bottom, and insures the passage of the air through the liquid on its upward course.

(*Fig. 4.*) *Active nasal inhalation.* Air passes over reservoir contents.

(*Fig. 5.*) *Active nasal inhalation.* Air passes through contents of reservoir; used when a more powerful action of the medicament is desired.

(*Fig. 6.*) Air supplied by mouth tube and passes over contents of reservoir. Used for ordinary forms of infantile bronchitis, pneumonia, diphtheria, etc.

(*Fig. 7.*) Air supplied by mouth tube *1* passes over contents of reservoir. The bent exit tube *5* gives a means of directing the product. Used in diphtheria, scarlet fever, etc.

(*Fig. 8*). Air supplied by mouth tube *1* passes over contents of reser-

Fig. 4.

Fig. 5.

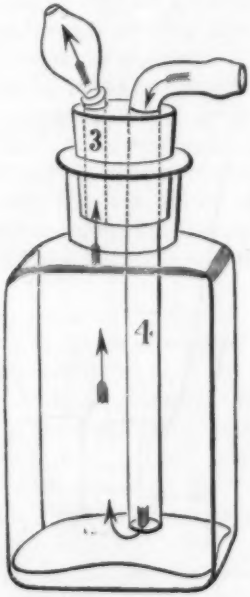


Fig. 6.

voir through directing tube *6*, which is bent at two right angles and somewhat longer than is represented; suggested by Dr. James Craig. Special use in diphtheria, scarlet fever, etc.; the nascent chloride can be directed into the face of the patient without danger of infection.

(*Fig. 9.*) Same as *Fig. 7*, only that directing tube, *5*, *5*, is cut in twain, and the free ends connected by india-rubber hose which may be two or more feet in length, and should be often cleaned by the passage of water. Used in specially bad cases of diphtheria, scarlet fever, etc.

(*Fig. 10.*) Air forced through contents by india-rubber bulb—first suggested by Dr. J. Solis Cohen—or forced by the mouth through an india-rubber hose.

All directing tubes for passive inhalation can be used in combination with No. 4, and rubber bulb, in the same manner as described for tube No. 1.

Use.—To avoid the objection of expired air from another person's air passages.

DIPHTHERIA.

It was objected to the Inhaler as first described that in its use in diphtheria, the nurse who blows the nascent chloride of ammonium into the face of the patient, would be brought into so close a contact with the patient that the sick breath loaded with the vegetation peculiar to the disease would be inhaled by the nurse—and besides, that it was not a very healthy or clean procedure to make *the patient* inhale the breath of the nurse.

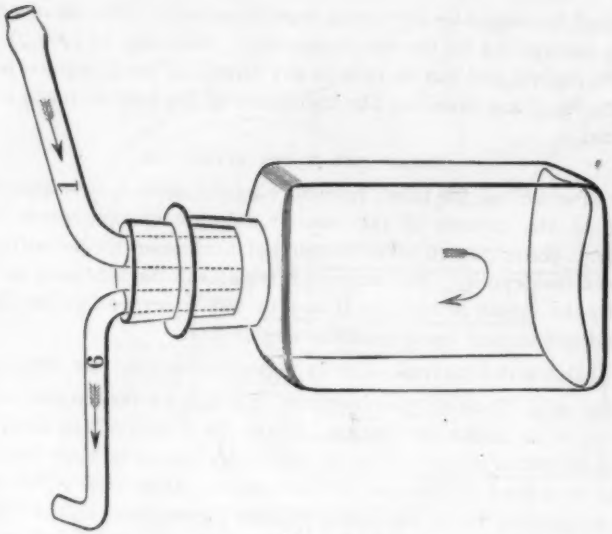
To the first of these objections, avoidance is given by adopting a bent glass tube in the vent of the Inhaler in such a manner that the nurse can stand at some distance to the side of the patient and blow the "snow" into the mouth of the patient. (*Fig. 8.*)

Hence the tube has two bends, so that the general direction of the tube is downwards and forwards and then to the right or left as the case may be, into the mouth of the patient. It would do no harm to have the tube enter the mouth or nostril of the patient, but it is not necessary, as each inspiration of the patient would be loaded with the crystals of the nascent chloride of ammonium which are carried into the air passages as a local application.

If the tubes break, they can be readily supplied by the manufacturers.

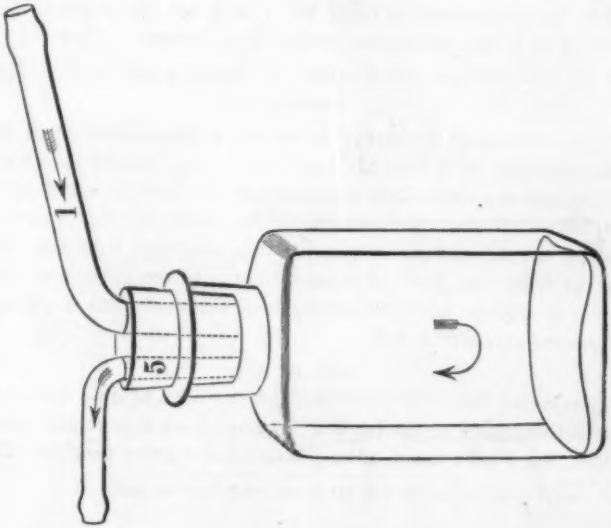
The objection to metallic tubes lies in the chemical action of acid on the metal. Perhaps lead tubes would be the least objectionable. Hard rubber tubes would avoid all objections, chemical and

Fig. 8.



PASSIVE INHALATION.

Fig. 7.



PASSIVE INHALATION.

physical, but would be very much more expensive. The use of a flexible india-rubber tube for the vent is advised. This may be (*Fig. 9*) of any length desired, and can be bent in any direction, but it requires holding by the hand and directing like the nozzle of the hose attached to a fire engine.

CLEAN THE TUBES AFTER USE.

After use, all the tubes become clogged more or less from the deposit of the crystals of the nascent chloride of ammonium on the inside. Water poured from the spout of a common tea-pot will quickly remove the deposit. The water that remains in the tube may be blown out by the mouth or bulb, or it may be left to evaporate, but the tube should not be used again until thoroughly dry.

PASSIVE INHALATION—A BULB SUBSTITUTED FOR THE BREATH.

(*Fig. 10*). To avoid the objection, "It is not a very healthy or clean procedure to make the patient inhale the breath of the nurse," Dr. Craig suggested the use of the bulb of india-rubber to blow the current of air as is done in the use of the common atomizers. This is not a new suggestion, for in Dr. J. Solis Cohen's great work on the "Diseases of the Throat," there will be found, on page 345, published in 1878, a drawing of an instrument for this very purpose. Tests with this bulb attached to the Inhaler were satisfactory.

The use of the bulb is confined to Passive Inhalation. It may be used by being attached to tubes No. 1 or 4, for the larger orifice, also to Nos. 2 or 5, for the smaller orifice of the stopper. (See *Fig. 1.*)

HOW TO CHARGE THE INSTRUMENT TO PRODUCE NASCENT CHLORIDE OF AMMONIUM.

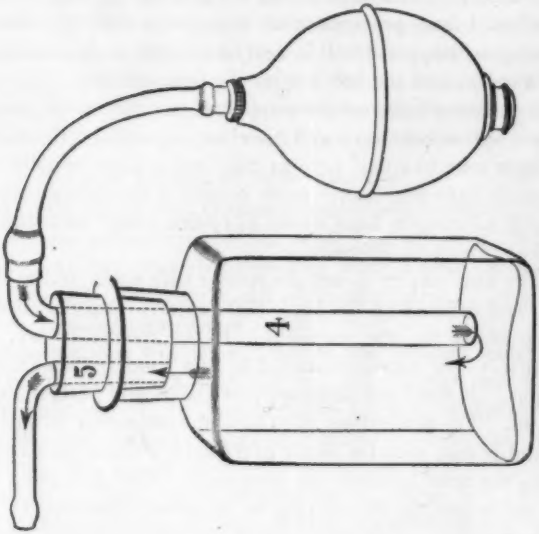
The instrument is charged by putting a tablespoonful * of muriatic or chlorohydric acid into the reservoir. Care should be taken to see that the acid is good. It is not necessary to have it chemically pure, but it must contain vapor enough to rise freely in the chamber when acted on by the current of air, whether it comes from the lungs of a nurse or from the bulb of india-rubber. If the apparatus fails, the trouble is oftener with the strength of the acid than anything else. *The commercial acid is best.*

CARE OF ACID.

The writer has been troubled to preserve the acid on account of the imperfect stoppling of the bottles. Ground glass is generally considered the best, but I have found glass-stoppered bottles to leak and allow the

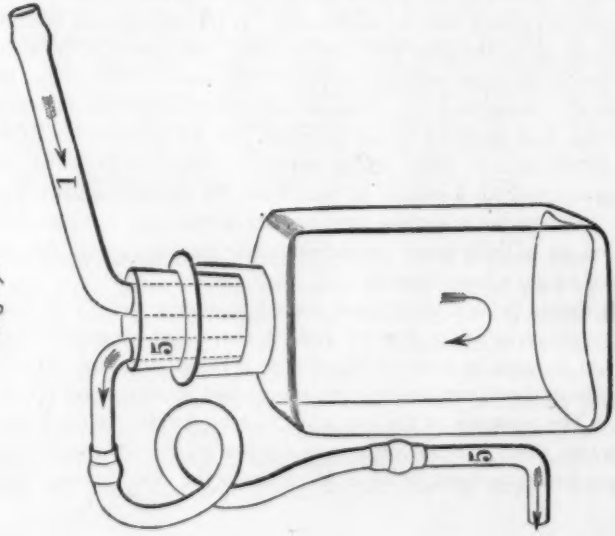
* CAUTION.—Do not use a metal spoon to measure the acid.

Fig. 10.



PASSIVE INHALATION.

Fig. 9.



PASSIVE INHALATION.

free acid to escape, so that it did not give satisfactory results—and this, too, when I had procured what were termed by the dealers perfectly ground-glass stoppers! It is well to lute the stoppers with vaseline and immediately close the bottle after the first opening.

A common india-rubber stopper, if not too much loaded with impurities, will answer very well to close a small bottle of the acid. It may seem trite to allude here to this, but a good quality (f. f. f.) *acid is a vitally important matter to the success of the Inhaler, and I find it the most difficult thing to have simple and plain things understood fully by the recipient of medical information.*

The next step is to wet the sponge with water and squeeze dry in a cloth, and suspend on the hook that depends from the cork stopper. It is then ready for the ammonia. If the sponge is dry, it repels the ammonia. The ammonia should be of a good quality (f. f. f.) and full of vapor. It need not necessarily be chemically pure, though it is better to be so. The main thing is to have the ammonia in vapor, so that it will readily mix with the vapor of the acid. Some have had difficulty in making the acid balance the ammonia. This is a point that requires tact, and is due to the varying or imperfect qualities of the reagents. The acid is oftener at fault, and it may be said, once for all, that the apparatus is worthless with poor muriatic acid; there is little trouble with the ammonia. Suppose that both the acid and ammonia are good, the moment a current of air is sent through the reservoir by bulb or breath, the cloud of crystals form in abundance. If the reagents are not properly balanced, one or the other will predominate. Suppose it is the acid, then one must use stronger ammonia in place of the weak. The sponge must be washed with water and then charged with the stronger ammonia as before described, and returned to the reservoir. If on application of the draft there is still an acid taste, I have been accustomed to keep the current passing through for a minute or two, when the balance usually regulates itself. Should the acid then predominate, it must be weakened by the addition of a little water poured into the reservoir, and the attempt renewed to get a true balance.

It should be said here that a perfect balance is not so necessary in *Passive Inhalation* as in *Active*. Indeed, there is an advantage of a slight excess of the acid in cases of diphtheria, as it will combine with the free ammonia of the decomposing membranes and secretions of the air passages. The presence of the free acid, to a moderate extent, is not to be deprecated when it is not enough to discomfort the patient, who is apt, by signs and symptoms, to show an excess of the acid through the sensi-

tiveness of the respiratory tract to the introduction of foreign substances in the atmosphere. Unless the use of the instrument gives relief to the patient, I would advise its discontinuance. Usually patients express a feeling of grateful relief by the use of the Passive Inhalation of the nascent chloride of ammonium, and I have seen infants reach out their hands for it, and express discontent when the apparatus was disused.

FOR ITS USE IN DIPHTHERIA.

In order that the matter may be clearly understood, I would advise the apparatus to be used passively in the apartment (one not over fifteen feet square is best). At first there is no need of using it near the patient; *simply fill the atmosphere with the clouds of crystals just as the atmosphere of a smoking car is filled with tobacco smoke.*

A few observations will show whether the nascent chloride is agreeable to the patient or not. By this time the reagents will become balanced of themselves. If the patient makes no signs of discontent, I would advise the nurse gradually to approach nearer and continue to exhale the crystals until there can be no mistake in the matter of its agreement with the patient. Then the exhibition can go on at will, and the tube of exit vent be applied as closely as one pleases to the face or even nose and mouth of the patient.

Care should be taken to see that the crystals are kept in due quantity in the vapor, as will be manifested by the snow-white appearance of the cloud; a bluish shade appears when the crystals diminish. The ammonia is the first reagent to give out, and should be renewed oftener than the acid. After a little practice, there is usually no difficulty in the management of the apparatus. When the patient has had an exhibition of *fifteen to thirty minutes*, there may be a rest until some signs of difficulty appear. In bad cases of diphtheria, the apartment may be kept filled with the nascent chloride *all the time.*

THE USE OF THE BULB

hardly needs explanation. (See *Fig. 10*). It is a good plan to take it in the right palm, so that the ends of the fingers may squeeze it on to the ball of the thumb until the walls of the bulb come in contact with each other. When the hand is opened, the bulb will be filled with air ready for another expulsion. While the opening and closing of the hand must be quickly done, the act of closing and opening the bulb must be done about once in two or three seconds. There is such a thing as having a too rapid current of air through the apparatus and not giving time enough to mingle the vapors thoroughly.

In case of leaks about the stopper when the bulb is used, the tube or stopper may be luted with ordinary vaseline with "No. 8 French rubber bands," sprung on to them, or by winding them with fine thread.

The nascent chloride is not brought forward as a cure-all in diphtheria to the exclusion of proper and full feeding, baths and systemic medicine as indicated, but in the light of a *gentle, soothing, disinfecting, cleansing, sweetening and anodyne application to the diseased parts without discomfort to the patient, and with a certainty of its application to the air passages by way of the breath.* Another use is for the attendants to prevent contagion, by fortifying the mucous membranes of their own air passages with the tonic alterative and purifying influence of the nascent chloride of ammonium.

OTHER USES OF THE INHALER*—MENTHOL.

The popular and professional uses of menthol, the new or rather the old Japanese drug—for it has been in use in Japan for over two thousand (2,000) years, according to S. K. Takahashi, the Consul-General of Japan at New York—have not gone much beyond its application in the form of cones to the forehead in headaches and neuralgias. But its use has been extended much beyond this by some American physicians in other complaints with a success which ought to be better known and appreciated.

As examples of these improvements in menthol, mention may be made of a solution of the menthol in chloroform, as suggested by Mr. J. W. Colcord, Pharmacist, of Lynn, Mass., or in cologne as suggested by the writer, or in absolute alcohol as suggested by another. This allows of the menthol being used on the scalp in the hair, and of bringing it to act more quickly and certainly on the parts affected than the cones. But it is to Dr. James H. Salisbury that we are indebted for the great advancement in the uses of menthol as a remedy.

MENTHOL BY INHALATION AS SUGGESTED BY THE WRITER.

Menthol is a solid at the ordinary temperature of living rooms, but it melts into an oil like the oil of peppermint at comparatively low temperatures. Even at ordinary temperatures it will vaporize enough to give a clear taste of its qualities to air passed over it. I have often carried it about with me in a vial with an open wide mouth, and while suffering under infusorial catarrh, inhaled it with relief, simply by

* The hook and sponge should be removed before using the Inhaler, in all cases in which the sponge is not required to suspend a medical agent.

placing the upper lip half over the opened mouth of the bottle, and drawing in the breath in full inspirations. I think that the efficacy of the bottles of smelling-salts, which once were so popular, may depend on their influence on the infusoria of catarrh. Another way I have employed to inhale the menthol is the simple one of touching a water-moistened finger tip to the menthol and rubbing what menthol crystal adhered, into my moustache, allowing it to evaporate from the heat of the body and be inhaled through the nostrils passively—but these are modes to be resorted to when one is travelling and where home appliances cannot be obtained.

The nascent chloride of ammonium apparatus is an excellent appliance for the inhalation of menthol.

I usually direct that one drachm of the menthol crystals be put dry into the reservoir of the Inhaler, then add two ounces of water at the ordinary temperature of living rooms. It is then ready to inhale actively. It is best to draw the menthol through the mouth and exhale through the nostrils.

The subjective effects of this inhalation of menthol are pleasant, stimulating feelings of warmth imparted to the respiratory tract, and particularly felt on the sites which are effected by the inflammatory or irritated action. There is also the taste of the menthol over the sites of the gustatory nerves and a pleasant smell over the olfactory nerves. I say pleasant, because I have yet to hear any one call the smell or taste of menthol unpleasant. About Iodoform there is no doubt; nor about tobacco, which is so agreeable that it is a luxury to most, but not to me; while menthol suits all.

From many trials, I am sure that the mucous and erectile tissues of the nose are relieved of congestion (which twenty years ago I used to study in my own person with the rhinoscope). It is easy to determine this without the rhinoscope by the inhalation of menthol, from the less resistance to the passage of air. I have found, when the nasal passages were so closed as to make a nasal inspiration difficult, that after the above process, a nasal inspiration was easy. This I attribute to the alterative, soothing, anodyne and anti-erectile calmative effects of the menthol on the parts in question; for there is no doubt that the menthol penetrates and bathes the parts in vapory substance, just as sure as the nascent chloride of ammonium does.

PASSIVE INHALATION OF MENTHOL.

There is a wide field opened here. The same modifications of bulb and vent tube referred to above can be used, only it is advised that the

water on which the menthol floats be warmed by placing the reservoir in a vessel of hot water. By way of caution, it may be said that there is some danger of having the menthol vapor too strong, hence it must not be heated too hot or blown out too fiercely in the faces of the little ones until the degree of tolerance is found out. It is not poisonous. When used actively the menthol will last for a long time, and may be left in the reservoir without any special corking.

The uses of the inhalation of menthol, are as a therapeutical agent for common colds, infusorial catarrhs, sore throats, laryngitis, tracheitis, bronchitis, rhinitis, and many forms of cough especially of the neurotic varieties.

Its use is also suggested for headache and neuralgias of the face especially, simply from the fact that its inhalation brings the menthol into direct contact with the nasal mucous membranes, which are the best absorbing surfaces known in the human body where local applications of remedies can be made.

In proof of this I may be allowed to say that for many years I have administered the salts of morphia, in a snuff made of finely powdered sugar (one grain to a drachm) by a pinch between the thumb and forefinger, and I have known it to act as quickly as a hypodermic injection of the same salt.

I may add that I have employed an ointment made of the salts of morphia (one grain to the drachm of lard), and have found the applications of masses as large as a pea to act just as promptly. Hence I feel quite sure in recommending the menthol administration by the nasal mucous membranes. As a further corroboration, I would state that I once salivated a patient in two days by causing her to use a snuff of calomel and sugar finely pulverized.

It is hoped that the description has been clear enough to render further repetition unnecessary as to the mode of using the menthol by inhalation. When it is understood that menthol is not a poison in the strict sense of the term, the direction to use it *ad libitum* in inhalation may meet acceptance.

CASE OF HEADACHE SUPPOSED TO BE OF NEURALGIC KIND.

A young woman, of her own accord, employed the menthol in this Inhaler for her throat. On using it a short time, she was agreeably surprised to find that her headache was relieved at the same time as her throat. There is nothing strange in this, if we remember the remarkable effects of the menthol in peripheral neuralgias.

MENTHOL IN INFUSORIAL CATARRH CAUSED BY ASTHMATOS CILIARIS.

This is regarded by Kent, as a flagellate infusoria. He gives due credit to Dr. Salisbury as the discoverer.

The first published account was given in "Hallier's Zeitschrift für Parasitenkunde, 1873." Since then, I have published several papers on the subject, because I believe it an animal parasite that produces much mischief alone and in connection with other diseases, and because the parasite is so easily killed by parasiticides such as menthol used by inhalation, by snuff and by ointment. Evidence accumulates from year to year that it is a very common disease. Sometimes the patient gets well without treatment, but oftener it runs through a long course, and I have observed some fatal cases. In relation to those who regard these as merely ciliated epithelian, I would say there is no desire to force this belief.

The late Dr. Louis Elsberg was one who thought these forms were ciliated epithelia, but he was finally converted to the opposite view, not by any arguments as such, but by careful study of the morphological characters of the specimens taken direct from the nostrils of patients in his presence.

My own opinion is based on observations, running through many years, and from my own experience with the complaint under which I am suffering as I write and from which I am relieved by the inhalation of menthol.

I have had chronic cases in men where the cough had been excruciating, troublesome and obstinate beyond the reach of the physicians they consulted, and yet after finding the asthmatos in the expectoration alive, I have administered remedies that have killed the parasites and relieved the patients of their troubles.

A few years ago a medical gentleman, now President of a medical organization in this country, told me that he had studied microscopical pathology in the best European schools, and particularly epithelia, but he had never found any allusion to deformed epithelial cells from the air passages, so that it would seem the subject was not well understood by our best medical authorities. Those who adopt the epithelial idea have not yet explained how it happens that deformed ciliated epithelia are found on the conjunctiva of the eyes. This is a site where no ciliated epithelia have ever been found, but the asthmatos have been found there by several observers, having probably travelled from the nose through the lachrymal ducts.

MENTHOL IN SPURIOUS PNEUMONITIS.

The irritation caused by the asthmatos sometimes simulates lung fever, even in the adult, and is attended by severe distress and obstinate cough. The relief by the administration of remedies to the air passages has been magical, and also attended with dead forms of the asthmatos whereas they before were alive and rocking. It is hoped that none will decide this question either way until after a full and exhaustive study of the subject in hundreds of cases. It is possible to relieve such at once in the manner indicated.

If this were a matter of mere technical discussion, and had no anthropological relations, the writer would not care much about it, but as it is a matter of clinical experience, intimately connected with the welfare of every physician's clientele, he is interested in its appreciation. It is positive medicine to detect and remove the causes of disease.

NASAL INHALATION OF MENTHOL.

It is wonderful how soon the membranes of the nostrils are relieved of their turgescence and by what a feeling of relief the menthol insufflation is followed. To repeat, I testify from practical experience, for as this is written I am insufflating menthol with exactly the results here laid down. Not every influenza is caused by the asthmatos. In my own case at the present time, the nasal excretion has shown the asthmatos under the microscope.

The best time to catch the asthmatos is at the outset of the catarrh. Later they burrow into the deeper air passages and are more difficult to detect. When thirty or forty live specimens are found in the field of the microscope, it forms an impressive sight, especially when after the menthol or other application another specimen of sputum from the same source shows a like field with as many forms all dead or dying.

PEROXIDE OF HYDROGEN.

This Inhaler can be used for the inhalation of this reagent in various catarrhal affections of the air passages. The sponge may be removed and one or two teaspoonsful of the peroxide of hydrogen poured into the reservoir.

If desired one of the tubes accompanying the bottle may be inserted in to the vent in such a manner as to penetrate just below the surface of the peroxide of hydrogen and the air will pervade it, but the reagent is so volatile as hardly to require this.

The following is interesting in this connection :

119 YORK STREET, SAVANNA, GA., December 17, 1885.

Dear Doctor:—Your kind letter 15th to hand. The condition of O as evolved from HO_2 is, as far as I can understand, not accurately determined but certain it is that it is similar in its properties and powers to ozone. I have used a *neutral* eight to twelve volume solution in various ways for inhalation, and have nothing to record concerning it which is at all objectionable; the ages of the patients ranging from a few months to adult. You will find that a crystal of permanganate of potash dropped into the peroxide of hydrogen will cause the evolution of the oxygen in a very convenient manner; of course, a little heat will do the same thing. Starkey's preparation can, according to the published analyses evolve nothing but nitrous oxide and I doubt if that is evolved when employed. Yours sincerely, R. J. NUNN, M. D.

The following is Starkey & Palin's Compound Oxygen, as lately published in New York *Medical Record:*

℞ Saltpetre, ℥i
Chlorate of Potash, ʒi
Alcohol, ʒii
Water, ℥xiv.

IODINE.

Dr. Cahill, 642 Jersey Avenue, Jersey City, having suggested the desirability of the inhalation of iodine, I have experimented with it and find it can be inhaled with facility in this apparatus.

As the result of the test, I would advise the use of two to five grains of iodine put dry into the reservoir. When the stopper and tube are replaced, the apparatus is ready for use, *actively*. The sensible qualities of the iodine will not be felt at first, but after a time it will be perceived throughout the respiratory tract. Should it be found well borne and more strength to be desired, it is only necessary to set the reservoir into hot water. The hotter the water the stronger the iodine. I would not advise an inhalation longer than three minutes at a time; but this must be left to the judgment of the physician.

Nasal insufflations of iodine and eucalyptus may be employed in the same manner as with menthol; in fact, in general terms it may be said that nearly every inhalant that does not require great heat or does not chemically act on the japanned stopper or wire can be inhaled by putting it into the Inhaler. Mr. G. H. Hitchcock, firm of Kellogg, Hitchcock & Co., 24 Park Place, conducted some experiments for me and suggests the following as excellent:

IODINE INHALANT.

℞ Tincture of Iodine, 1 ʒ
Pure Glycerine q. s. ft., 1 ℥
M. S. Put ½ ℥ in Inhaler.

CARBOLIC ACID CRYSTALS.

The simplest form is the *dry* crystals. One teaspoonful or drachm can be put in the reservoir and the Inhaler used actively or passively with or without bulb or tubes. It is an antiseptic, agreeable, stimulant inhalant and may be used freely.

CARBOLIC ACID INHALANT.

℞ Acid Carbolic Cryst. Sol., 1 ʒ
Pure Carbolic Cryst. Sol., 1 ℥
M. S. Put ½ ℥ in Inhaler.

CARBOLATED IODINE.

℞ Tincture of Iodine, 1 ʒ
Pure Glycerine, 14 ʒ
Acid Carbolic Cryst. Sol., 1 ʒ
M. S. Put 1 ℥ in Inhaler.

OIL OF TAR.

Put one ounce in reservoir and inhale actively or passively at will.

OIL OF EUCALYPTUS, TURPENTINE, CAMPHOR, AROMATIC SPIRITS OF AMMONIA COLOGNE AND IODOFORM.

All of the above may be used as inhalants, according tothe advice of a medical practitioner.

At my request, Mr. J. W. Colcord, Pharmacist, of Lynn, Mass., has conducted a number of experiments. He writes me as follows:

LYNN, December, 14, 1885.

My Dear Doctor:—I have experimented with the Inhaler, and when I can find more leisure will continue the investigation. I think that a wide range of uses can be found for it, particularly in regard to inhalations of ammonio-hydrochloric acid vapor medicated with any therapeutic agents desired. I enclosed the Inhaler in a sand bath raising heat to about 180° F., causing a copious vapor, then placing a few drops of the eucalyptia on sponge. It worked well, but I think on account of its pungency it were better combined with tinct. benzoin comp. which, upon trial, has proved highly satisfactory. This could not fail to work well in soothing irritated or inflamed surfaces of the larynx or bronchial tubes. In nasal catarrh, a bulb could be attached and an addition of tr. of cubebs or cocaine would prove valuable. If sand bath is used, the fld. ext. of ipecac works finely in bronchial troubles.

OIL OF EUCALYPTUS—ANTISEPTIC,

Put one to four teaspoonfuls into the Inhaler and inhale at will.

"This will be found an excellent antiseptic. All the soldiers in the late Egyptian troubles had the oil of eucalyptus made into an elastic sponge. When desired for use, they pressed the sponge, broke the capsule and liberated the oil over their wounds. The medical staff state that wounds so treated healed far better than those treated differently."

J. W. COLCORD, *Pharmacist*, Lynn, Mass.

THE USE OF THE INHALER WITH HEAT.

To use the Inhaler for the nascent chloride of ammonium with heat applied by *sand bath*, as noted in Mr. Colcord's letter. The sand may be heated and poured about the Inhaler, which has been placed in a tin pail, for example. The reservoir should be previously heated over a flame or dipped into hot water before the sand is applied.

℞ Hot Water, 3ʒ
Tincture Benzoin, ½ ʒ
Tincture Ipecac, ½ ʒ

may thus be inhaled in bronchitis, like the nascent chloride of ammonium.

ETHER.

Wet the sponge with ether or pour a teaspoonful or two into the reservoir. The patient inhales actively through the oral or nasal tube. It is surprising how long the ether will last when thus inhaled; of course, when the lips are etherized, they will not close tight and then the etherizing stops.

This mode is advised in ANÆSTHESIA DURING LABOR and to begin the etherization in a surgical case to save time and material.

After the lips cease to act, the ether may be supplied by pouring it on a towel and the patient made to breathe through it.

CHLOROFORM

may be thus used, one being sure that air is thoroughly mixed with the vapor.

Rhigolene, kerosolene, nitrite of amyl and cologne may be used in like manner.

In head neuralgias, take menthol.

The nascent chloride of ammonium may be used in the following acute diseases:

1. Bronchitis.
2. Diphtheria.
3. Pneumonia, or lung fever.
4. Croup.
5. Scarlet fever.
6. Infusorial Catarrh.
7. Influenza.
8. Hay fever.
9. Asthma.
10. Emphysema.
11. Colds.
12. Urticaria of the throat, etc.

It is also used in most chronic diseases of the air passages.

The following letter shows the need of this inclusion, the writer of the letter having failed to note that at the very outset of the first paper, it was stated that the use of nascent chloride of ammonium was common among the Germans for chronic affections of the air passages.

PEMBROKE, GENESEE CO., N. Y., December 6, 1885.

EPHRAIM CUTTER, M. D.:

Dear Sir:—Having by chance seen your article on the "Active and Passive Inhalation of the Nascent Chloride of Ammonium, etc.," in the August number of THE PHYSICIAN'S MAGAZINE, and being quite forcibly struck with it, I take the liberty of asking your opinion in a case I now have on hand. It is chronic nasal catarrh, with deafness.* I was applied to on account of the deafness. You spoke of the use of this inhalation in "infusorial catarrh," but said nothing of its use in ordinary cases of chronic nasal catarrh. I am now using astringent medication, of graduated increasing strength, applied by means of a good nasal douche. No. 1. Do you think it would be well to use the inhalation in conjunction with the use of the douche after it? No. 2. Or would you advise the substitution of the inhalation for the douche? The patient is a robust boy of about fifteen years.

I trust you will pardon the liberty I have taken in writing to you in regard to this, for I was led to do so by the interest your article excited in me. I will be under many obligations to you if you will kindly favor me with your advice in this case.

Very respectfully yours, L. H. KITCHEL, M. D.

To Dr. Ephraim Cutter, 213 West Thirty-fourth Street.

No. 1, No; No. 2, Yes.

THE NEW SET OF TUBES.

After considering all suggestions and making several important additions to them, Mr. A. R. Foote designed the set of six tubes described and illustrated in this paper. They give control of all air currents that can be used for active (throat or nasal) or passive inhalation. The tubes can be used singly, or in differing combinations, as the case may require. By this means, the air current can be passed *over or through* the contents of the reservoir for either *active or passive inhalation*, thus rendering the apparatus capable of covering the whole range of usefulness for all volatile inhalants.

ALLIED USES.

As a drinking tube. Tubes No. 1 and No. 4 can be used as drinking tubes for hot water and liquid food while the patient lies on the back. The cup or goblet holding the liquid can be held on the breast; the short arm of the tube introduced into the liquid and the long arm put in the mouth.

213 Ariston, Broadway and Fifty-fifth Street, New York, May 1, 1886.

* A Boston dentist was cured of these by the continued use of the nascent chloride of ammonium.

GRANULATED MALT EXTRACT PEPTONIZED.

By W. Duffield Robinson, M. D.

[Physician, Eastern State Penitentiary, Pennsylvania.]

INDIGESTION is such a many-headed monster that the physician must indeed have a varied armamentarium to battle with it successfully. While one man's meat is another man's poison in dietary where this trouble exists, the expression is no less truthfully applicable in the selection of remedial agents. In the selection of our dietary and the general observance of hygienic laws, we have what may be intelligently termed preventive therapeutics. These, of course, should be considered of paramount importance in treating this troublesome and often stubbornly unyielding disorder.

We cannot, as in true dyspepsia, recognize any pathological change in the structure of the multifarious organization of the intestinal tract and associate glands, but their functional inactivity and sensitiveness to offence is very marked.

The most potent factor in causing indigestion is the exhaustion of functional powers by taking too great a quantity of food hurriedly, when the system is unnerved by over exertion or excitement, or just before retiring.

Anæmia, general physical weakness, want of proper exercise to stimulate to activity the circulation of the fluids of the body, sympathetic nervous disorders, cardiac diseases, weakness, and functional cardiac derangements causing trouble at the terminal point of another branch of the pneumo-gastric nerve, so that the branch supplying the stomach is sympathetically embarrassed; liver derangement, etc., are the most usual causes. Nothing demonstrates more clearly our inability readily to apply appropriate and effective remedial agents for indigestion than the endless array of different formulas that are called into use for its cure, and still we have nothing like a cure-all, nor even a generally effective remedy. I wish, however, to record my experience with a combination with which I have been making a series of experiments during the past few months. It is the Granulated Malt Extract Peptonized, prepared by the well-known pharmaceutical chemists, Messrs. Wiley &

Harris, Philadelphia. Each tablespoonful of the dry malt contains two grains of concentrated scale pepsin and one grain of extract of pancreatin. I have prescribed over fifty pounds of this preparation and have watched the effect with great care. I have no desire or special reason for favoring it, but as it was a combination which suggested favorable therapeutic action, was palatable and could be readily taken by the patient, I was induced to give it a fair trial. I can now say that I am very much more pleased with the results than I had anticipated when I first determined to test its value.

The convict population of the Penitentiary, averages nearly 1,700 per annum. Among these is to be found an unusually large average of digestive disorders. They are subject to such discipline as renders experiments of this kind unembarrassed and satisfactory in detail of application and the accuracy of results. I have used extensively nearly all the popular pepsins and pancreatin preparations with more or less favorable results, but as a general remedy, when they are indicated, I like the peptonized malt better than any other, especially where cost is at all to be considered.

The lack of power to digest starches seems to be admirably supplied by this preparation, and Phstisis patients have been able to retain, digest and assimilate preparations of cod liver oil, when other remedies have constantly failed.

But the cases in which I have been most pleased with its action, have been those of indigestion, associated with functional heart troubles, spells of palpitation, etc. I have had a number of old cases of this character in which I exhausted the usual list of remedies without affording relief, and in every instance the trouble was entirely removed by the peptonized malt. I have also used it with much satisfaction in the stomach troubles of pregnancy and with patients who are taking iodide potassium and who could not bear that salt alone. Perhaps no better proof of its efficacy would be desired than the solicitous requests of the patients to have me continue to prescribe it, assuring me at the same time of its benefits. I believe it to be a combination that must become very popular with its more general introduction to the medical profession, and it is certainly worthy of trial and careful investigation.